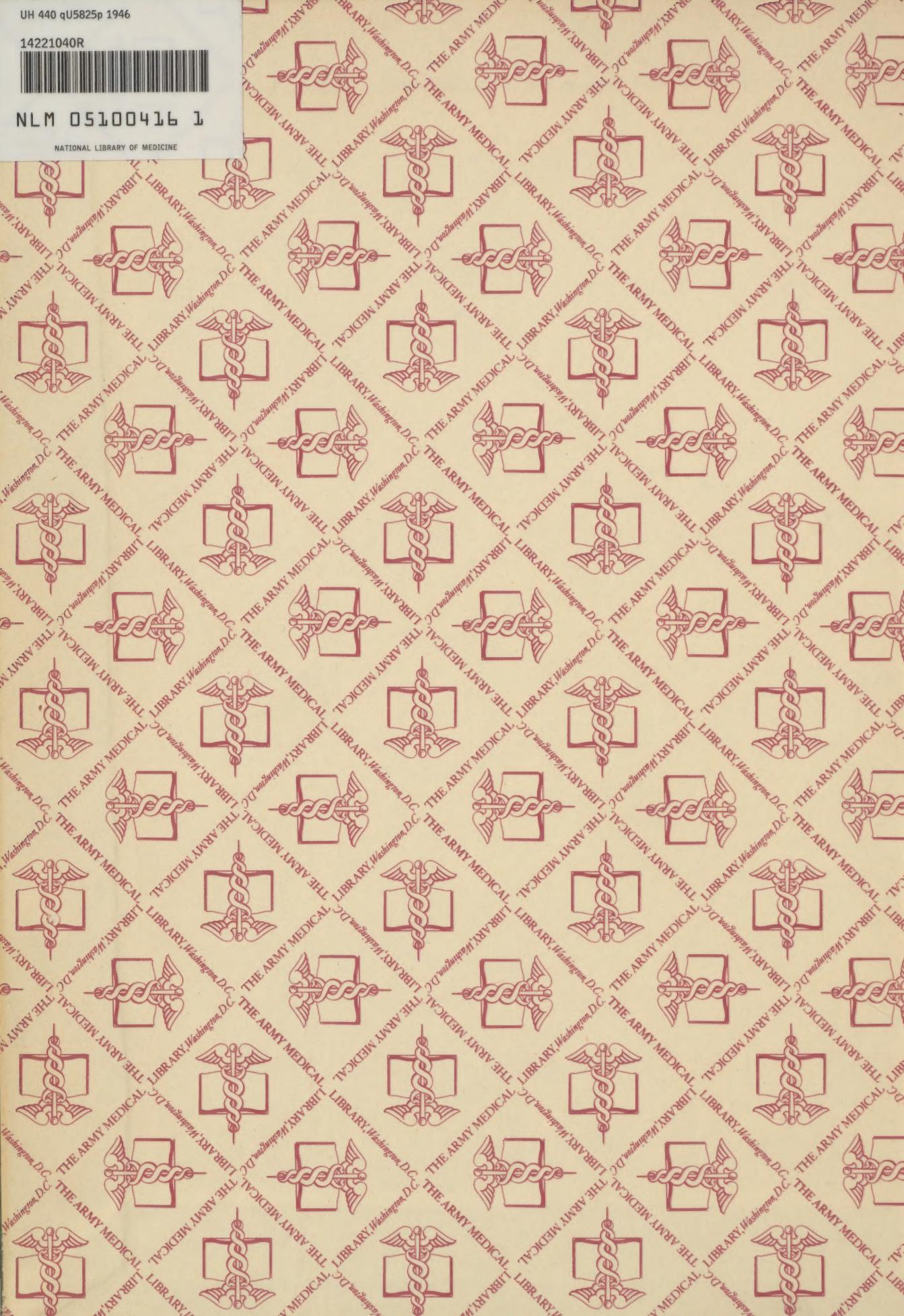


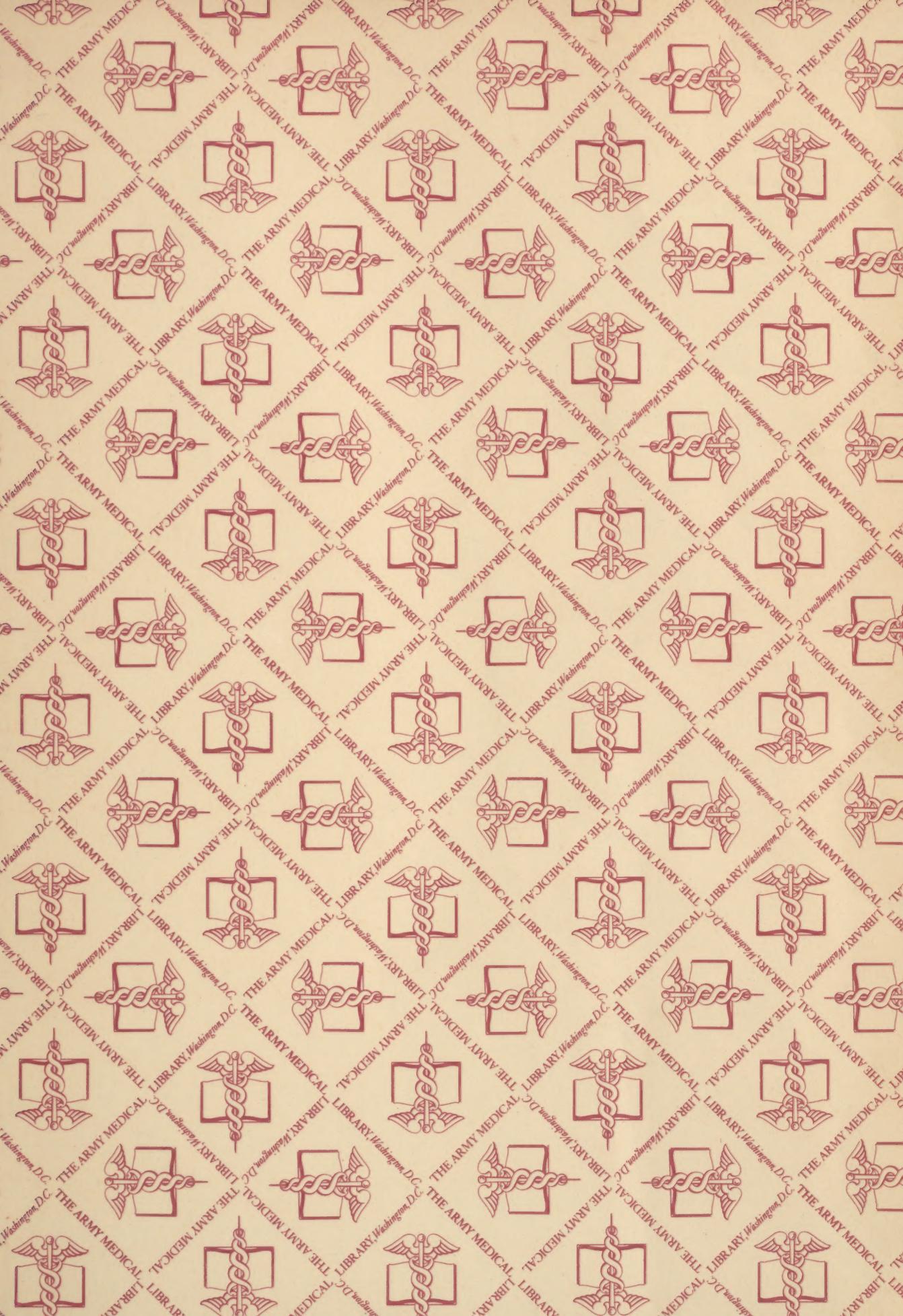
14221040R



NLM 05100416 1 91400150 NLM

NATIONAL LIBRARY OF MEDICINE





649
INDEXED

CH

~~RESTRICTED~~

UNCLASSIFIED

THE PROCUREMENT AND DISTRIBUTION OF MEDICAL SUPPLIES
IN THE ZONE OF THE INTERIOR
DURING WORLD WAR II

CLASSIFICATION CHANGED	
TO	UNCLASSIFIED
AUTH	E.O. 10501
DATE	5 Nov 53
SECURITY FEE PER	by

Frank B. Rogers

Richard E. Yates
Capt., Med Adm C

(This is not the final form in which the subject of medical supplies will be covered in the History of the Medical Department, United States Army, World War II. This monograph has not been reviewed by the Historical Division, War Department Special Staff.)

ARMY
U.S. WAR DEPARTMENT
OFFICE OF THE SURGEON GENERAL
31 May 1946

HISTORICAL DIVISION, S. G. O.

UNCLASSIFIED

~~RESTRICTED~~

~~CONFIDENTIAL~~

BY THE INFORMATION OF THE REPORTER THE
KIDNAPERS ARE NOT TO BE KNOWN OR
THEIR LOCATION UNKNOWN.



SEARCHED & INDEXED
7 NOV 1946

DO
to complete and finish the report of (name of unit)
to transmit and be recorded by (name of unit)
of the (name of unit) Bureau of Investigation
and whenever need may arise
(name of unit) Bureau of Investigation
1946

UH
440
g U5825p
f 1946

SEARCHED
INDEXED
SERIALIZED
FILED
NOV 1 1946

SEARCHED
INDEXED
SERIALIZED
FILED
NOV 1 1946

RESTRICTED

TABLE OF CONTENTS

Chapter	Page
I PROCUREMENT PLANNING	1
II SUPPLYING THE EXPANDING ARMY, 1939-1941	22
III ADMINISTRATIVE ORGANIZATION OF SUPPLY FUNCTIONS, 1941-1945	56
IV THE PROCUREMENT OF MEDICAL SUPPLIES DURING THE WAR PERIOD	66
V THE PROCUREMENT OF PROBLEM ITEMS	99
VI THE OPTICAL PROGRAM	122
VII PACKING AND PACKAGING PROBLEMS	144
VIII THE STORAGE OF MEDICAL SUPPLIES	156
IX DISTRIBUTION OF MEDICAL SUPPLIES TO ZONE OF INTERIOR INSTALLATIONS	169
X DISTRIBUTION OF MEDICAL SUPPLIES TO THEATERS OF OPERATIONS	188
XI MEDICAL SUPPLIES FOR INTERNATIONAL AID	211
APPENDIX	232

RESTRICTED

~~RESTRICTED~~

CHAPTER 7

ARMED FORCES PLANNING

The Secretary for War's Report, December

This document is reproduced from unedited, unreviewed material
of the War Department, dated December 1, 1898, on file in the Historical Division, SGO, and statements of opinion,
expressed by the author, concerning the preparation for war. Any comments, or criticisms contained herein do not necessarily
represent the views of The Surgeon General, Department of the Army, or
official policy or doctrine. Therefore, this document is not to be
reproduced in any part or in its entirety.

Joint for World War I.

In the organization of war reserves, which nearly the Army until
the final stages of the conflict, the Medical Department
was most fortunate. The short war with Spain in 1898, although
not foreseen, the need for procurement planning, and above all the
absence of necessity for adequate war reserves. The Dodge Commission,
in the latter part of 1898 to investigate the Army, found
that the Medical Department did not have adequate supplies at the
outset of the war and that it failed to provide these supplies
as a source of the conflict. Accordingly, the Commission recom-
mended "a year's supply for an Army of about four times the
present strength, of all such medicines, hospital furniture, and stores
as will be reasonably required by keeping, be with ready in hand
at the medical supply depots."¹²

The Medical Department viewed these recommendations as a goal to
which it strived and attained. Unfortunately Congress did not share this
view. For years no money was appropriated to provide the war
with only through the most rigorous economy could funds be
found for the administration of supplies for just one general hospital
and the purchase of reserve equipment. Finally, in 1905,
appropriation of \$204,000 was made, which satisfied the Medi-
cal Department to procure some of the needed equipment. By the
beginning of 1906, the War Reserve, started in the form of unit accom-
modation, had failed to provide for clever illusions and was held in
disrepute in the continental United States. The final pro-
tection of the Dodge Commission was not attained, but so far as recovery
from the Spanish War concerned, the Medical Department was far better prepared

~~RESTRICTED~~

central Australian plateau and mountains at elevations up
to 1000 m. It appears to be a subarid woodland and is said to
occur on the dry flood plains and hillsides in eastern and
central Australia. It is a dense scrubby vegetation with trees up to
10 m. tall and shrubs up to 2 m. high. The ground surface is
covered with a dense litter of fallen leaves and twigs.

RESTRICTED

CHAPTER I

PROCUREMENT PLANNING

The Necessity For Procurement Planning

When the United States emerged from the world conflict of 1914 to 1918, an impressive lesson learned was the necessity for industrial preparedness. No branch of our Army entered that war with adequate plans for the procurement of supplies and equipment, although the Medical Department of the Army had been sensible of the need for a number of years and had given some attention to procurement planning. Shortly after 1902, The Surgeon General submitted tentative plans for the procurement of medical and hospital equipment for armies of 150,000 and 250,000 men, respectively, and in 1908 a similar plan was prepared to equip an army of 500,000. Other plans were submitted in 1913, 1914, and 1915.¹ It is obvious, however, that these preparations were insufficient for World War I.

In the accumulation of War reserves, which supply the Army until the industrial facilities can begin to produce, the Medical Department was more fortunate. The short war with Spain in 1898, although not demonstrating the need for procurement planning, did show the absolute necessity for adequate war reserves. The Dodge Commission, appointed in the latter part of 1898 to investigate the Army, found that the Medical Department did not have adequate supplies at the beginning of the war and that it failed to procure these supplies during the course of the conflict. Accordingly the Commission recommended that "a year's supply for an Army of at least four times the actual strength, of all such medicines, hospital furniture, and stores as are not materially damaged by keeping, be held constantly on hand in the medical supply depots."²

The Medical Department viewed these recommendations as a goal to be sought for and attained. Unfortunately Congress did not share this attitude. For years no money was appropriated to provide the War Reserve, and only through the most rigorous economy could funds be saved in the administration of supplies for post and general hospitals and applied to the purchase of reserve equipment. Finally, in 1908, a special appropriation of \$200,000 was made, which enabled the Medical Department to procure more of the needed equipment. By the beginning of 1916, the War Reserve, stored in the form of unit assemblies, was sufficient to provide for eleven divisions and was held in various depots within the continental United States. The goal prescribed by the Dodge Commission was not attained, but so far as reserve supplies were concerned, the Medical Department was far better prepared in 1917 than in 1898.³

RESTRICTED

~~RESTRICTED~~

Yet, when the war ended and a careful examination of supply operations was made, it became clear that neither in war reserves nor in procurement planning was the Medical Department prepared for war. Indeed, no branch of the Army, and no army of any country involved, was prepared to cope with the supply problems of that great war. The vast industrial dislocations were not anticipated, nor did the general staff of any country realize the size and complexity of the supply problem in modern war. Even the German general staff, which had prepared for the war with an attention to detail far exceeding that of its enemies, treated industrial mobilization with a casualness that is almost inexplicable.⁴ The absence of effective procurement planning in the United States created a situation which would have been dangerous to our security, if allies had not held the battle lines until our industrial machine could gird itself for combat. No less than fourteen administrative bureaus competed with one another for raw materials, fuel, transportation, labor, factory space, and finished supplies. Each was intent upon fulfilling its own mission, regardless of its importance in relation to the others. In many respects this scrambling competition was directed toward hazy and ill-defined goals. The General Staff had not prepared an adequate mobilization plan. Consequently no branch of the Army could estimate its requirements before searching for the sources of supplies. Thus the Army did not know, with any approximation to accuracy, the size of its requirements; nor did it know where or how vast the quantities, certain to be needed, could be procured.⁵

The Medical Department itself, at the beginning of World War I, did not appreciate the magnitude of the supply problem; it had formulated no adequate plans for procurement, and it lacked officer personnel trained in supply work.⁶ The inevitable results of this lack of planning, which affected all branches of the Army, were: great delays in procurement; waste of resources through the overproduction of some items and the underproduction of others; improper distribution of the load, causing congestion in factories, difficulties in transportation, and upsets in the price structure; competition among many buying agencies; and an inequitable distribution of the war's economic burdens.⁷

The necessity for procurement planning and adequate War Reserves, so impressively demonstrated by the first World War, is emphasized by a consideration of the Medical Department's supply responsibilities. The services of this department, and the supplies with which it performs those services, must be immediately available when the Army is expanded. Although large-scale military operations may be delayed for many months, increased medical services are required at the beginning of mobilization. When hostilities are delayed, it is not necessary that field equipment, consisting largely of items and assemblies developed for the emergency treatment and evacuation of battle casualties, be immediately available; but the medical supplies which are used routinely and at a rate varying directly with the size

~~RESTRICTED~~

~~RESTRICTED~~

of the Army, must be ready for use when the emergency begins.

Fortunately most commercial items were manufactured in such large quantities that even the suddenly increased demands of the Army could be satisfied. There were difficulties, however, in augmenting the production of some of these items--difficulties which pointed clearly to the necessity for procurement planning and accumulation of war reserves. Many drugs and chemicals were produced from imported raw materials; surgical and optical instruments, during the period between the two world wars, were imported from Germany; and a number of important metals, used in the manufacture of medical equipment, were obtained from foreign sources.⁸ To increase the production of these commercial items, stockpiles of raw materials had to be acquired, factories built or expanded, and skilled artisans trained. Such changes in the economy of a nation do not automatically develop; their need must be anticipated by the Medical Department, and their execution must be accomplished by whatever agency is established to control the Nation's war-time economy.

The difficulties incident to the procurement of commercial items were multiplied many fold in the procurement of field equipment. These items first had to be developed, tested, and accepted by the Medical Department, then requirements computed and sources for their manufacture discovered or originated before the item could reach the production stage. Raw materials, labor, transportation, and the other elements of the manufacturing process must be assembled at the very time the Nation's economy is disrupted and off-balance. Changes in design, increases in requirements, and unexpected and unpredictable shortages of essential raw materials may still further complicate the process. Under these circumstances, a year or two sometimes elapsed between the development of an item and its production in sufficient quantities. Only war reserves can enable the Medical Department to operate in the field during this interval, and only through procurement planning can the department estimate its needs and hasten the day of their fulfillment.

Administrative Organization of Procurement Planning

The disruption of the national economy and the delay in delivery of military supplies, which developed during the first World War, convinced Congress of the wisdom of industrial preparedness, and in 1920 an amendment to the National Defense Act charged the Assistant Secretary of War with the "supervision of the procurement of all military supplies and other business of the War Department pertaining thereto and the assurance of adequate provision for the mobilization of material and industrial organizations essential to war-time needs."⁹ This latter phrase, which is here underlined, conveyed authority for the far-reaching procurement planning program which began in 1920 and continued until our entrance into the second World War.

~~RESTRICTED~~

RESTRICTED

The administrative organization for the accomplishment and supervision of Medical Department procurement planning was established on three levels: Office of the Assistant Secretary of War, Office of The Surgeon General, and the depots of the Medical Department. On 25 October 1921, a Procurement Division was established in the Office of the Assistant Secretary of War, consisting of a Current Supply Branch and a Planning Branch. For the purpose of preparing plans for industrial mobilization, the latter branch was divided into a number of sections: Statistical, Requirements, Industrial Policy, Purchase, Production, Allocation, Labor, Finance, Foreign Relations, and Transportation and Storage.¹⁰ Between 1921 and 1939 there were a number of minor reorganizations, but the planning and supervisory duties, suggested by the names of these sections, were not materially changed.¹¹

In the Office of The Surgeon General, the next echelon of administrative organization was established. Here, in June 1922, a Procurement Planning Section was set up in the Finance and Supply Division, and was charged with "the collection of information and the compilation of data pertaining to sources of medical supply."¹² Designated at various times a "section," "branch," and "subdivision," this part of the Finance and Supply Division continued to function throughout the years covered by this chapter. It began its work in 1922 with one full-time officer, and during successive years the staff varied from two to four.¹³

In the field, the administrative organization of procurement planning was controlled by the location of Medical Department depots and was affected, to a lesser extent, by the establishment of War Department Procurement Districts, within the framework of which procurement planning was performed. In 1923 the United States was divided into fourteen such War Department Procurement Districts.¹⁴ The supply arms and services, however, were authorized to establish their own nationwide organization, grouping two or more War Department districts into one district and thus reducing the number of field offices. The Medical Department, therefore, established four procurement districts, in each of which a procurement planning office was included. The ten War Department districts in the eastern part of the country were grouped, by the Medical Department, into the New York district; the 11th and 12th were consolidated into the Chicago district; St. Louis was established as headquarters of the 13th district, and San Francisco for the 14th.¹⁵ This organization of field offices was especially suited to Medical Department needs, for a branch depot was located at St. Louis, and there were medical sections in the New York and San Francisco general depots. Moreover, these cities, in addition to Chicago, were the centers of practically all the industries which produced medical supplies and equipment.

In 1933 the fourteen War Department Procurement Districts were abolished, and the United States was divided into four procurement

RESTRICTED

RESTRICTED

zones.¹⁶ This caused little change, however, in the Medical Department's field organization. New York, Chicago, St. Louis, and San Francisco continued to be the centers of procurement planning, and Birmingham was established as an additional center. It remained comparatively inactive, however, and in 1939 it was abolished. For all practical purposes, procurement planning activities of the Medical Department were confined, throughout this period, to the four cities which were designated in 1923.¹⁷

Personnel devoted to procurement planning in the field were engaged, also, in current procurement. In St. Louis and San Francisco the procurement officers of the depots were given procurement planning as an additional duty. The medical supply officer at the Chicago Quartermaster Depot acted also as the procurement planning officer. Only in the medical section of the New York General Depot were personnel assigned exclusively to procurement planning, as most of the Medical Department's procurement (and hence procurement planning) was accomplished in the New York area. The number of officers engaged in procurement planning in the New York depot varied from year to year. At times as many as six were engaged in this work; at other times only one or two were assigned full time to this duty.¹⁸

Accomplishments in Procurement Planning.

With the administrative organization and the personnel described in the foregoing section, the Medical Department sought to plan its procurement for the next war, and thus avoid the delays, difficulties, and embarrassments which had hampered its efforts during World War I. Both common sense and experience dictated that procurement planning must provide answers to the following questions:

1. What supplies and equipment will be required in the event of war?
2. From what manufacturing facilities can they be obtained?

To a great extent the work involved in answering these questions was divided between the Office of The Surgeon General and its field installations. The preparation of specifications and tables of equipment and the computation of requirements were accomplished in Washington, and it was the duty of the field to locate and survey facilities and prepare schedules of production.

In determining "what is required" both type and quantities were, of necessity, considered. This involved, first, the preparation of specifications for medical supplies and equipment, a task which continued steadily throughout the years of peace. In the drafting of specifications, the usefulness and military serviceability of the items to be procured were given primary consideration, but experience in World War I had made it apparent that exclusive attention to these

RESTRICTED

~~RESTRICTED~~

aspects would hamper the procurement effort. To describe characteristics which would be ideal might easily result in specifying an item which could not be manufactured in sufficient quantities. "The best is the enemy of the good" applies with special force to war-time procurement. It was the policy of The Surgeon General, therefore, to bear constantly in mind the desirability of making Medical Department specifications conform to the best commercial practices in regard to size, quality, and packaging. Close contact was therefore maintained with national trade associations, the Federal Specifications Board, as well as with the Bureau of Medicine and Surgery of the Navy Department.¹⁹

In 1928, there was a total of 3,712 items in the supply catalog which required specifications. By the end of that year, specifications for 1,213 of these items had been prepared and had received the approval of the War Department.²⁰ This number was swelled to 1,494 by 1932. In 1933, however, a new policy was adopted, which slowed down the process of preparing specifications but which injected a large element of realism into those which were approved. All specifications prepared during 1933 and subsequent years were subjected to the test of purchasing before they could be approved as official U.S. Army specifications. Until such approval was received, they were described as "Medical Department tentative specifications." By 1937 the test of purchasing had been applied to such an extent that 1,062 items of medical supply were covered by Army specifications. This number was increased to 1,137 in 1938 and to 1,570 in 1939.²¹ The Medical Department Supply Catalog, in 1939, listed a total of 4,652 items, 3,018 of which comprised the component parts of individual equipment, organizational equipment, and equipment of field hospitals. These were known as "war items," and it was imperative, as war in Europe became imminent, that these supplies and equipment be adequately described in specifications. By July 1939, the war items were accounted for in the following manner:

Covered by Federal specifications-----	386
Approved U.S. Army specifications-----	1,570
Covered by Par. 41, AR 5-240-----	57
Procured from other services-----	44
Manufactured or assembled at depots-----	125
Medical Department tentative specifications-----	176
Covered by purchase descriptions-----	432
Specifications in various stages of completion-----	228
Total-----	3,018

As the years of peace came to an end, the Medical Department sought to convert the last three items of the list into Army specifications, and thus be prepared for the mighty procurement effort which war would entail.²²

~~RESTRICTED~~

RESTRICTED

In the meantime, the procurement planning section of the Finance and Supply Division had been steadily engaged in determining the quantities of medical supplies which would be needed in the event of war. Of all the tasks connected with procurement planning, none was more tedious, complicated, and uncertain in its accomplishment than the computation of requirements. Many diverse elements, some of which were imponderable, entered into these computations and rendered the final figures doubtful if not inaccurate. Although not founded on guesswork, as the critics of procurement planning occasionally charged, the computation of requirements did involve a considerable amount of prophecy, which was almost as hazardous. In addition, requirements figures were subject to frequent change and revision, for a quantity of medical supplies deemed sufficient for a war beginning in 1928 would be utterly inadequate for a conflict occurring in 1938. Within these limitations, however, requirements figures were a necessary part of procurement planning. Doubtful as they were, they offered the only comparatively stable goal towards which procurement efforts could be directed.

In the computation of requirements, the first important element to be determined was the "troop basis"--the size and composition of the Army which was to be raised if war should come. This information was provided by the general mobilization plans which were prepared by the General Staff and approved by the Secretary of War. In the fall of 1921, the first mobilization plan of the nation's history was prepared, calling for a total of 1,500,000 men.²³ This plan was revised in 1928 and again in 1933, when a considerably larger force was contemplated. In 1938, the Protective Mobilization Plan was approved. This included an "Initial Protective Force" of approximately 400,000 and authorized successive augmentations, if the emergency required it, which would raise an Army of 4,000,000 men.²⁴

Tables of equipment and allowances constituted the next important element entering into the computation of requirements. These tables indicated the types and quantities of medical supplies and equipment which would be furnished to each troop unit in the mobilization plan, and thus made it possible to compute the initial requirements. From 1925 to the end of the peace period, The Office of The Surgeon General was intermittently engaged in the preparation of equipment and allowance tables and in their revision. By 1927 tables had been prepared for the most important types of Medical Department field installations, including general, surgical, convalescent, evacuation, and station hospitals of various sizes; hospital trains, convalescent camps, and Army dispensaries; expansion equipment for field hospitals; and medical regiments, which at that time were the most important troop units for the evacuation and treatment of battle casualties.²⁵ In common with all other parts of procurement planning, these tables were subject to frequent change. In 1930, a thorough revision was begun, which was practically completed by the end of 1931.²⁶

RESTRICTED

~~RESTRICTED~~

The mobilization plans and the equipment and allowance tables made it possible to compute the initial supplies and equipment which would be needed by various troop units, but they gave little information in regard to the quantities of supplies and equipment which these troop units would use in training and in battle. Additional information was necessary before maintenance requirements could be computed. In an effort to predict the future by an examination of the past, the Procurement Planning section resorted to the supply and medical statistics of World War I. Maintenance factors were thus developed, which indicated probable rates of use for each item of supply and equipment, both in the zone of the interior and in the theaters of operations.²⁷

Upon the basis of all the foregoing information, the computation of requirements proceeded almost constantly during the twenty years of peace. In 1922 The Surgeon General announced that "requirements are now complete," except for new items;²⁸ but subsequent reports made it clear that the computation of requirements, from its very nature, was a task which could never be really completed. Each change in the mobilization plan caused a corresponding change in requirements; the frequent revisions of equipment and allowance tables made requirements figures obsolete; and changes in the current rates of use in Army hospitals suggested adjustments in the probable rates of use during war. From 1922 until the end of the period, therefore, the requirements were tentative figures, subject to frequent revision and to periodic recomputation. In 1927 it was acknowledged that "the requirement figures now in existence are known to be faulty," and that no figures had been computed for several hundred items recently added to the supply catalog.²⁹ By the end of 1928, however, The Surgeon General announced that the revision of requirements, begun in 1926, had been completed. "Careful study," he reported, "has been made of the probable rates of use of each item in war in the theater of operations and in the zone of the interior, and the total needs in each item computed by months for the War Department general mobilization plan. Initial allowances and rates of use for each item have been submitted to and approved by the War Department, and so, our requirement studies are now on an approved basis."³⁰

The new mobilization plan of 1933 made it necessary to recompute all requirement figures, a task which occupied the procurement planning section's personnel during the major part of 1935 and which involved no less than 600,000 arithmetical calculations.³¹ By this time also the cubic volume and the weight of nearly half the Medical Department items had been computed, thus providing valuable information for the preparation of shipping schedules.³² Beginning in 1936, the monthly cost of medical supplies to be procured in the event of war was estimated for each item, and the total cost of each month's supply requirements for a mobilization was computed.³³ When war in Europe seemed imminent in 1938, the Protective Mobilization Plan was approved by the Secretary of War, thus launching a thorough revision

~~RESTRICTED~~

RESTRICTED

of Medical Department requirement figures--a revision which had not been completed when German divisions crossed the frontier into Poland.³⁴

While the Office of The Surgeon General was estimating the quantities of medical supplies which would be required in time of war, the procurement planning sections of medical depots were engaged in locating and surveying the manufacturing facilities which could produce these supplies. These facilities were located by various means: contacts with trade and manufacturing associations; references to Thomas' Register; and by use of the Bidders' List, which was maintained in the purchasing section of all depots and which contained the names of all manufacturers and dealers who bid on Medical Department contracts. When a summary appraisal of a facility indicated that it probably would be useful to the Medical Department, the procurement district informed the Office of The Surgeon General of the facility and requested that its allocation to the Medical Department be obtained. The Office of The Surgeon General then asked the Assistant Secretary of War to make the allocation. This allocation, theoretically at least, granted to the Medical Department a virtual monopoly on the military production of the factory affected³⁵ and authorized it to make a detailed production survey. By 1927, a total of 1,294 facilities, located in 33 states, had been allocated to the Medical Department. Nearly 600 of these were in New York, Pennsylvania, and Massachusetts.³⁶ In 1932, the total number of allocations was reduced to 1,081³⁷ and in 1937 numerous changes were made which reduced the number of single allocations to 467,³⁸ a number which was virtually unchanged in 1938 and 1939.

In the meantime, the next step in the procurement planning process--the survey of allocated facilities--occupied supply officers of the Medical Department. This involved an examination of the number, types, and condition of the factory's buildings; the quantity, types, and condition of the machinery; the types and adequacy of transportation; the number, sex, and training of employees; the source and quantity of power employed; the types and sources of raw materials used; and the rate at which the manufactured item could be produced. Such an ideal survey was not always possible. If the procurement planning officer lacked interest or ability, the survey was hasty and superficial; and if the managers of a plant cared little for government orders and were skeptical of procurement planning, not enough information could be obtained for an adequate survey.³⁹ These difficulties were still further increased by the scarcity of travel funds which prevailed during the two decades of peace, and which greatly restricted the number of visits procurement planning officers could make to factories. It became necessary, therefore, to resort to correspondence in a great number of instances.

Within these limitations the Medical Department exerted itself to become familiar with the production capacity of the factories

RESTRICTED

~~RESTRICTED~~

allocated to it. By 1926, nearly one-half of the allocated facilities had been surveyed,⁴⁰ and by 1932 the task had been completed.⁴¹ It was a task, however, which could not be accomplished and set aside, for new allocations and the changes in industry made it necessary that the facilities be resurveyed from time to time. On these resurveys, the procurement planning sections of medical depots were busily occupied from 1933 to 1939. In the latter year, The Surgeon General reported that "surveys were brought up to date for practically all of the facilities in which the Medical Department has an interest."⁴²

While the procurement planning officers in the field were making these surveys, medical supply officers in Washington examined the data collected and apportioned Medical Department requirements directly to the allocated facilities. This involved the preparation of "tentative schedules of production" by the procurement planning section of the Office of The Surgeon General. These schedules were dispatched to the district procurement planning officers, who presented them to the manufacturing facilities. Each schedule showed the quantities of an item which could be produced each month by the manufacturer for a stated number of months. When approved by the manufacturer, the schedule was termed an "accepted schedule of production"⁴³ and was filed in the Office of The Surgeon General. These schedules obligated neither the Medical Department nor the manufacturer. Instead, they informed the manufacturer of the Medical Department's probable needs, and they gave The Surgeon General an estimate of a plant's ability to satisfy these needs. It was expected that the schedules would enable procurement officers, upon the outbreak of war, to place contracts promptly for all the medical supplies and equipment required in mobilizing a large army. In accordance with this essential purpose of procurement planning, it was necessary, therefore, to prepare schedules of production for the required quantities of all items in the supply catalog.

From 1923 to 1939 considerable progress was made in the preparation of these schedules. By 1930 a total of 1,713 items had been covered by schedules,⁴⁴ and by 1935 the number had grown to 2,985.⁴⁵ In 1938 the task was virtually completed, although it was expected that numerous revisions would be made as changes in Medical Department requirements and the capacity of manufacturing plants became evident.⁴⁶ Indeed, the schedules of production, as guides to procurement, could have little value if they were not constantly revised. No manufacturer could be sure of producing a stated quantity of items after the outbreak of war unless he knew that raw materials, tools, and labor would be available, and naturally this assurance could not be given far in advance. At their best, therefore, the schedules merely indicated quantities which could be produced under favorable conditions; at their worst, they represented hasty, ill-considered estimates rendered by a busy factory manager who wished to rid himself of the procurement planning officer and return to more agreeable tasks.⁴⁷

RESTRICTED

For a large number of items difficult to procure, the schedules of production did not contain sufficient information to guide procurement officers. Late in the 1920's, therefore, the Office of The Surgeon General began to prepare specific procurement plans for surgical instruments, sterilizers, dental instruments, x-ray machines, and other items in which procurement difficulties were anticipated. These plans contained a detailed record of all procurement information available, including analyses of specifications, requirements, allocations, schedules of production, and factory plans.⁴⁸ By June 1932, a total of 2,522 items had been included in specific procurement plans, and this part of the procurement planning program was declared to be 83.87 percent complete.⁴⁹ In subsequent years, procurement plans for additional items were prepared and old plans revised. The remarkable rapidity with which these plans were prepared seems to indicate, however, that they did not contain all the pertinent data; and it is probable, therefore, that their value was not great.⁵⁰

Schedules of production and specific procurement plans were based upon the assumption that sufficient raw materials would be available after mobilization. Consequently, it became necessary to ascertain the requirements in raw materials and to provide assurance that sufficient quantities could be obtained for the manufacturers of Medical Department items. This phase of procurement planning began with the belief that not many raw materials would be important enough and scarce enough to deserve attention. The first step was to determine the materials in which procurement difficulties were anticipated. By 1925 the Medical Department had selected camphor, iodine, nux vomica, opium, and quinine as strategic⁵¹ raw materials which were vitally necessary in the manufacture of medical supplies and which would be difficult to procure in the event of war.⁵² This list remained unchanged until 1936, when nux vomica and camphor were deleted.⁵³ In that year, also, the Army and Navy Munitions Board devised a list of critical⁵⁴ materials which contained a few materials essential in the manufacture of medical supplies. Late in the 1930's a list of "Essential Materials Neither Strategic nor Critical"⁵⁵ was issued, which included camphor, alcohol, acetic acid, and other materials important in Medical Department procurement.⁵⁶

Throughout these years procurement planning officers were estimating the quantities of strategic, critical, and essential raw materials which would be needed if the United States went to war. For those materials which were the exclusive procurement responsibility of the Medical Department, specific procurement plans were prepared, including the quantities required, sources of production, and studies of substitutes. These plans were first prepared in 1925, but they were subject to frequent revisions as mobilization plans changed and methods of manufacture were altered. Raw materials which were not procured by the Medical Department, but which entered into the manufacture of medical supplies, received less extensive study. Estimates

RESTRICTED

RESTRICTED

of Medical Department requirements were submitted to the Assistant Secretary of War and were forwarded to the technical service having procurement responsibility, which then consolidated the requirements of all the services and prepared specific procurement plans.⁵⁷

A final phase of procurement planning, which engaged the attention of the Medical Department during the two decades preceding World War II, involved the training of Regular Army and Reserve officers for the supply responsibilities of a great war. During World War I the Medical Department had approximately 400 officers in its supply service, a majority of whom held temporary commissions and promptly returned to civil life after the conflict ended.⁵⁸ When procurement planning began, a determined effort was made to commission in the Sanitary Reserve Corps a large number of executives in the industries producing medical supplies. This would have made available to the Medical Department highly skilled men who could, with efficiency and economy, carry on the extensive procurement operations which war would entail. But the prospective recipients of these commissions were loath to form such a connection with the Army. They objected to the fifteen days of active duty or the enrollment in a correspondence course, required of Reserve officers each year, and they feared the provisions of the penal code which described heavy penalties for agents of corporations who, while employed by the Federal government, transacted business with their own firms.⁵⁹ The recruitment of these executives, therefore, was not speedily accomplished. By 1924, sixty-two had accepted commissions,⁶⁰ and the number had increased to 106 in 1926,⁶¹ and to 110 in 1927.⁶² Increases, if any, during subsequent years are not recorded, and it is possible that the Medical Department considered the Sanitary Reserve Corps to be sufficiently large.⁶³ The training program for reserve personnel, although not extensive, was steadily pursued from 1925 until the outbreak of war. Each year from five to sixteen Reserve officers were called to active duty for a period of two weeks. During this time they served in the Office of The Surgeon General, the Office of the Assistant Secretary of War, the New York General Depot, St. Louis Medical Depot, or other field installations. Whatever their assignment, they were given some opportunity to become familiar with Army practices, the needs of the Medical Department, and the specific procurement plans which had been prepared.

The training of Regular Army officers for procurement and supply duties was far more intensive. In 1922 a Medical Supply Training School was established at the Medical Section, New York General Depot, and six officers were promptly enrolled. The instruction was intended to convey a general familiarity with all supply functions of the Medical Department and a detailed knowledge of procurement.⁶⁴ This school functioned until February 1924, when the establishment of the Army Industrial College in Washington rendered it inadvisable for the Medical Department to maintain a separate school. Supply officers, however, continued to receive a most important part of their instruction

RESTRICTED

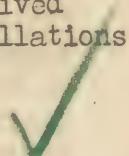
RESTRICTED

in the Medical Section of the New York depot.

Operating directly under the Office of the Assistant Secretary of War, the Army Industrial College was opened on February 21, 1924, and soon became an integral part of the Army's long-term preparations for mobilization. Here supply officers from all technical services received instruction in the many-sided problems of industrial mobilization. In addition, each student officer prepared a plan for the procurement of an important item with which his own technical service was concerned, and the plans thus prepared by medical supply officers were incorporated into the plans of the Office of The Surgeon General.

Soon after its establishment, the Army Industrial College became the capstone of the Medical Department's training system for supply officers. The training system began with a two-year tour of duty in the New York General Depot, followed by one year in the Office of The Surgeon General, and was completed with the one-year course at the Army Industrial College. During the 1920's, from three to five medical officers⁶⁵ finished this curriculum each year, and were assigned to procurement planning and supply duties in the Office of The Surgeon General or in one of the medical depots in the field. In the 1930's only two medical officers each year were enrolled in the Army Industrial College, but by the end of that decade a total of 41 had been graduated from the college.⁶⁶ In addition, there were a number of officers who never attended the Army Industrial College, but who had received extensive procurement training in Medical Department field installations.

War Reserves and Stockpiles.



Shortly after the conclusion of World War I, the Medical Department examined its surplus supplies and made plans to establish an adequate War Reserve. In April 1924 The Surgeon General submitted to The Adjutant General a detailed statement, elaborating the necessity for reserves of medical supplies and listing the types and quantities which should be stored. "The Medical Department," he declared, "becomes, upon mobilization, responsible for the immediate provision of adequate hospital facilities and care. There is no training period. Sickness and injury wait for no man." If the necessary supplies and equipment were not readily available, "suffering and loss of life would result and a storm of criticism would be engendered. Not to provide it is to neglect the lessons of the Spanish-American and World War and to reverse the practice of the Medical Department for the last twenty-five years, a policy which has been successfully defended before and approved by the Congress." The Surgeon General then listed a large number of field hospitals, hospital trains, medical laboratories, medical regiments, and other installations which should be stored as unit assemblies. In addition, he requested authority to hold in reserve considerable quantities of strategic and critical drugs (fully processed

RESTRICTED

~~RESTRICTED~~

and packaged), field dressings, and surgical instruments.⁶⁷

In September 1924, The Adjutant General authorized The Surgeon General to store as war reserves a portion of the assemblies and items which had been requested. Some of the unit assemblies were sharply reduced in number, and others were eliminated entirely; the strategic and critical drugs were approved without change; all field dressings were struck from the list, except 1 million first-aid packets; and the quantities of surgical instruments were greatly reduced. "You are further directed," The Adjutant General concluded, "to initiate a program extending over four years for building up the existing shortages at the rate of \$25,000 a year."⁶⁸

The War Reserve thus approved by The Adjutant General was estimated to be sufficient, when the shortages were eliminated, to supply two field armies, or 1 million men, for a period of two months.⁶⁹ The production lag-time of most of the items far exceeded two months, but there were other and far more serious deficiencies in the War Reserve. The stocks of medical supplies were not in the proper depots, nor were they suitably assembled.⁷⁰ The total value of the authorized War Reserve, including the Quartermaster items in the unit assemblies, was slightly over \$24,000,000, but the value of the stocks actually on hand in February, 1926, was only a little more than \$8,000,000.⁷¹ Thus there was a deficiency of some \$17,000,000, and the only authorized provision for filling this large gap was the program to spend \$25,000 a year for four years. Repeated efforts to obtain additional funds brought no result. In 1933 a new War Reserve was authorized, which provided for a smaller quantity of medical supplies and equipment; but two years later The Adjutant General was informed that even the smaller requirements could not be fulfilled. There were serious shortages in hospital assemblies, medical kits, and veterinary kits.⁷²

In the accumulation of strategic drugs, the Medical Department's efforts attained a larger measure of success. It received authority, in 1925, to establish stockpiles containing 113,000 pounds of opium, 13,000 pounds of nux vomica, and a quantity of cocaine sufficient to last for two years. This program entailed very little expense, for the supplies of opium and cocaine had been seized by the Federal Narcotics Control Board and were transferred to the Medical Department without cost.⁷³ By the end of 1938, the stockpile of opium had been increased to 192,000 pounds, and 133,200 pounds of quinine were in the reserve. Considering these quantities to be insufficient, the Medical Department strongly urged, during 1938 and 1939, that additional supplies of both drugs be procured.⁷⁴

In the following chapters, an opportunity will be presented to examine the manner in which the results of procurement planning were actually used, and to assess the value of procurement planning as a

~~RESTRICTED~~

RESTRICTED

preparation for war. At present it is sufficient to say that the Medical Department, for nearly twenty years, devoted a portion of its energies to a study of the supply problems of war and to the preparation of plans to solve these problems. When the mechanized armies of Germany swept across the plains of Poland in September, 1939, a situation was created which, even before the attack on Pearl Harbor, shifted the emphasis from planning to action.

RESTRICTED

~~RESTRICTED~~

NOTES FOR CHAPTER I

¹Major W. K. Turner, "Procurement Planning," p. 1 (Historical Division, Office of The Surgeon General, 381.-1).

²Colonel Edwin P. Wolfe, Finance and Supply (Vol. III of The Medical Department of the United States Army in the World War, U.S. Government Printing Office, Washington, 1928), pp. 19-22.

³Ibid., pp. 25-26.

⁴Major General Robert U. Patterson, "Address to Army Industrial College," September, 1931, p. 1 (Historical Division, SGO, 381.-1).

⁵Major W. K. Turner, "Procurement Planning," pp. 1-2 (Historical Division, SGO, 381.-1).

⁶Major General M. W. Ireland, "Address at Commencement Exercises, A.I.C., The Military Surgeon, March, 1925.

⁷Major E. R. Strong, "Procurement Planning," I, pp. 1-2 (Historical Division, SGO, 381.-1).

⁸Of the thirty-one raw materials classified as "strategic" in January, 1923, five were procured by the Medical Department: camphor, iodine, nux vomica, opium, and quinine. By 1927, the War Department had classified approximately 5,000 items as "essential." Sixty-three per cent of these were procured by the Medical Department. (A large number of these items were later deleted, and the percentage procured by the Medical Department was considerably reduced.) Major Roy C. Holflbower, "Address to the Army Industrial College," October 17, 1927, p. 4 (Historical Division, SGO, 381.-1).

⁹The National Defense Act, approved June 4, 1920, Section 5a (41 Stat. L. 764). Underlining added.

¹⁰Office of the Assistant Secretary of War, Memorandum Orders No. 1, dated October 25, 1921 (Historical Division, SGO, 381.-1).

¹¹See Appendix, Exhibit No. 1.

¹²Report of The Surgeon General, U.S. Army, to the Secretary of War (Washington: Government Printing Office, 1922), p. 169. (Cited hereafter as, Report of The Surgeon General.) "Monthly Progress Reports on Procurement Planning" were submitted to the Assistant Secretary of War, beginning in 1924. In April, 1925, quarterly reports were substituted, and in 1931 these were replaced by annual reports.

~~RESTRICTED~~

RESTRICTED

¹³ See Report of The Surgeon General for the years 1922-1939.

¹⁴ See Appendix, Exhibit No. 2.

¹⁵ Boston, Philadelphia, and Atlanta were designated as sub-offices of the New York district, but offices were not established in those cities. Instead, the New York district maintained separate files for each of the three cities in order to maintain procurement planning records on a geographical basis. In the event of war, it was contemplated that procurement offices would be opened in Boston, Philadelphia, and Atlanta.

¹⁶ The Adjutant General to The Surgeon General, March 9, 1933 (Historical Division, SGO, 381.-1).

¹⁷ "The Story of Medical Department Procurement Planning, 1920-1940" (Historical Division, SGO, 381.-1); Annual Report of Procurement Planning, Medical Department, July 1, 1934 (Historical Division, SGO, 381.-1).

¹⁸ See Report of The Surgeon General, 1923-1939.

¹⁹ Ibid., 1925, p. 284; 1926, p. 290; 1927, p. 295.

²⁰ Ibid., 1928, p. 253.

²¹ Many of the specifications drafted between 1937 and 1939 were prepared in the Medical Section of the New York General Depot and in the St. Louis Medical Depot, to which additional commissioned and civilian personnel were transferred for this duty.

²² Report of The Surgeon General, 1929, p. 168.

²³ The Adjutant General to The Surgeon General, October 13, 1921 (Historical Division, SGO, 381.-1).

²⁴ Colonel F. C. Tyng's "Speech to Advanced Class at Carlisle," October 19, 1938, p. 4 (Historical Division, SGO, 381.-1).

²⁵ Report of The Surgeon General, 1927, p. 295.

²⁶ Ibid., 1931, p. 333.

²⁷ Major E. R. Strong, "Procurement Planning, II," pp. 2-3; Speech by Major General Robert U. Patterson to the Army Industrial College, September, 1931, pp. 11-12 (Historical Division, SGO, 381.-1).

²⁸ Major General M. W. Ireland to The Assistant Secretary of War, November 15, 1922 (Historical Division, SGO, 381.-1).

RESTRICTED

RESTRICTED

29 Colonel C. C. Whitcomb to the Medical Supply Officer, New York General Depot, October 4, 1927 (Historical Division, SGO, 381.-1).

30 Report of The Surgeon General, 1928, p. 253.

31 Ibid., 1931, pp. 131-132.

32 Ibid., 1934, p. 138; 1935, p. 132.

33 Ibid., 1936, p. 126.

34 Ibid., 1939, p. 167; Colonel H. K. Rutherford to The Surgeon General, March 27, 1939 (Record Room, SGO, 381.-1).

35 This was based upon two assumptions: (1) that Congress would, upon the outbreak of war, authorize this type of industrial control, and (2) that the Army would require no more than 50 percent of a factory's output, the remainder being left for civilian use. The course of events from 1941 to the end of World War II proved both of these assumptions to be false.

36 "Allocation of Facilities, 1928" (Historical Division, SGO, 381.-1).

37 "Progress Report of the Medical Department [on Procurement Planning]," dated June 30, 1932 (Historical Division, SGO, 381.-1).

38 Report of The Surgeon General, 1937, p. 150. In addition to the single allocations, there were 6 joint allocations, 54 ANMB allocations, and 3 OAS allocations.

39 Recollections of Colonel Earle Standee conveyed to the author on January 9, 1945; Captain Earle Standee to the Medical Supply Officer, New York General Depot, October 15, 1936 (Historical Division, SGO, 381.-1).

40 Report of The Surgeon General, 1926, p. 290.

41 "Progress Report of the Medical Department [on Procurement Planning]," June 30, 1932 (Historical Division, SGO, 381.-1).

42 Report of The Surgeon General, 1939, p. 167.

43 Prior to 1926, the term "war order" was employed to describe these schedules. In that year, however, use of this term was discontinued, for the schedule was not an "order" in any sense of the word. It was merely an estimate of the capacity to produce a particular Medical Department item.

44 Report of The Surgeon General, 1930, p. 248.

RESTRICTED

RESTRICTED

⁴⁵ Ibid., 1935, p. 132.

⁴⁶ Ibid., 1938, p. 158.

⁴⁷ Recollections of Colonel Earle Standlee conveyed to the author on January 9, 1945.

⁴⁸ Major E. R. Strong, "Procurement Planning," II, p. 4 (Historical Division, SGO, 381.-1); Office of The Assistant Secretary of War, "Notes on Industrial Mobilization," No. 13 (revised), November, 1929, pp. 21-23 (Historical Division, SGO, 381.-1).

⁴⁹ "Progress Report of the Medical Department [on Procurement Planning]," June 30, 1932 (Historical Division, SGO, 381.-1).

⁵⁰ For example, procurement plans covering 1,381 items were prepared during the year 1930, and 648 items were covered in plans prepared in 1931. (Report of The Surgeon General, 1930, p. 248; 1931, p. 332.)

⁵¹ Strategic materials were those materials essential to the national defense, the supply of which depended, in whole or in part, on foreign sources.

⁵² "Monthly Digest of Procurement Planning Activities, Medical Department," April 15, 1925 (Historical Division, SGO, 381.-1).

⁵³ Captain Earle Standlee to the Chief, Bureau of Medicine and Surgery, U.S. Navy, October 8, 1936 (Historical Division, SGO, 381.-1).

⁵⁴ Critical materials were those materials essential to the national defense, the procurement of which in war, while difficult, would not involve the problems anticipated in the procurement of strategic materials.

⁵⁵ These were materials essential to the national defense, for which no procurement problems in war were anticipated but whose status required constant surveillance. It was thought that future developments might necessitate the reclassification of some of the materials as strategic or critical.

⁵⁶ See "Definitions and Lists of Essential Commodities," Army and Navy Munitions Board, Commodities Division, January 7, 1939 (Historical Division, SGO, 381.-1).

⁵⁷ See Report of The Surgeon General, 1924-1939, sections devoted to procurement planning.

⁵⁸ Colonel Edwin P. Wolfe to the Assistant Secretary of War, March 9, 1922 (Historical Division, SGO, 381.-1).

RESTRICTED

~~RESTRICTED~~

59 "Procurement Plan of the Medical Department," December 31, 1922 (Historical Division, SGO, 381.-1).

60 Report of The Surgeon General, 1924, p. 227.

61 Ibid., 1926, pp. 290-291.

62 Ibid., 1927, p. 296.

63 In 1929 the Medical Department estimated that it would need 95 reserve officers for procurement duties in the event of war. ("Personnel on Procurement Planning, Fiscal year 1930" [Historical Division, SGO, 381.-1].)

64 "Procurement Plan of the Medical Department," December 31, 1922, p. 27 (Historical Division, SGO, 381.-1).

65 Although Medical Administrative Corps officers were engaged in supply duties, they were never given a tour of duty at the Army Industrial College. These assignments were received exclusively by Medical Corps officers.

66 Report of The Surgeon General, 1939, p. 167.

67 Major General M. W. Ireland to The Adjutant General, April 18, 1924 (Historical Division, SGO, 381.-1).

68 Major General H. H. Tibbetts to The Surgeon General, September 6, 1924 (Historical Division, SGO, 381.-1). In the Appendix, Exhibit No. 3, the reader will find the war reserve requested by The Surgeon General and the quantities in each category approved by The Adjutant General.

69 Major E. R. Strong, "Procurement Planning," II, pp. 6-7 (Historical Division, SGO, 381.-1).

70 Brigadier General Walter D. McCaw to The Adjutant General, December 21, 1925 (Historical Division, SGO, 381.-1).

71 "War Reserves--Prepared in Response to Letter of February 11, 1926, A.G. 381.4" (Historical Division, SGO, 381.-1).

72 Lieutenant Colonel T. J. Flynn to The Adjutant General, November 4, 1935 (Historical Division, SGO, 381.-1).

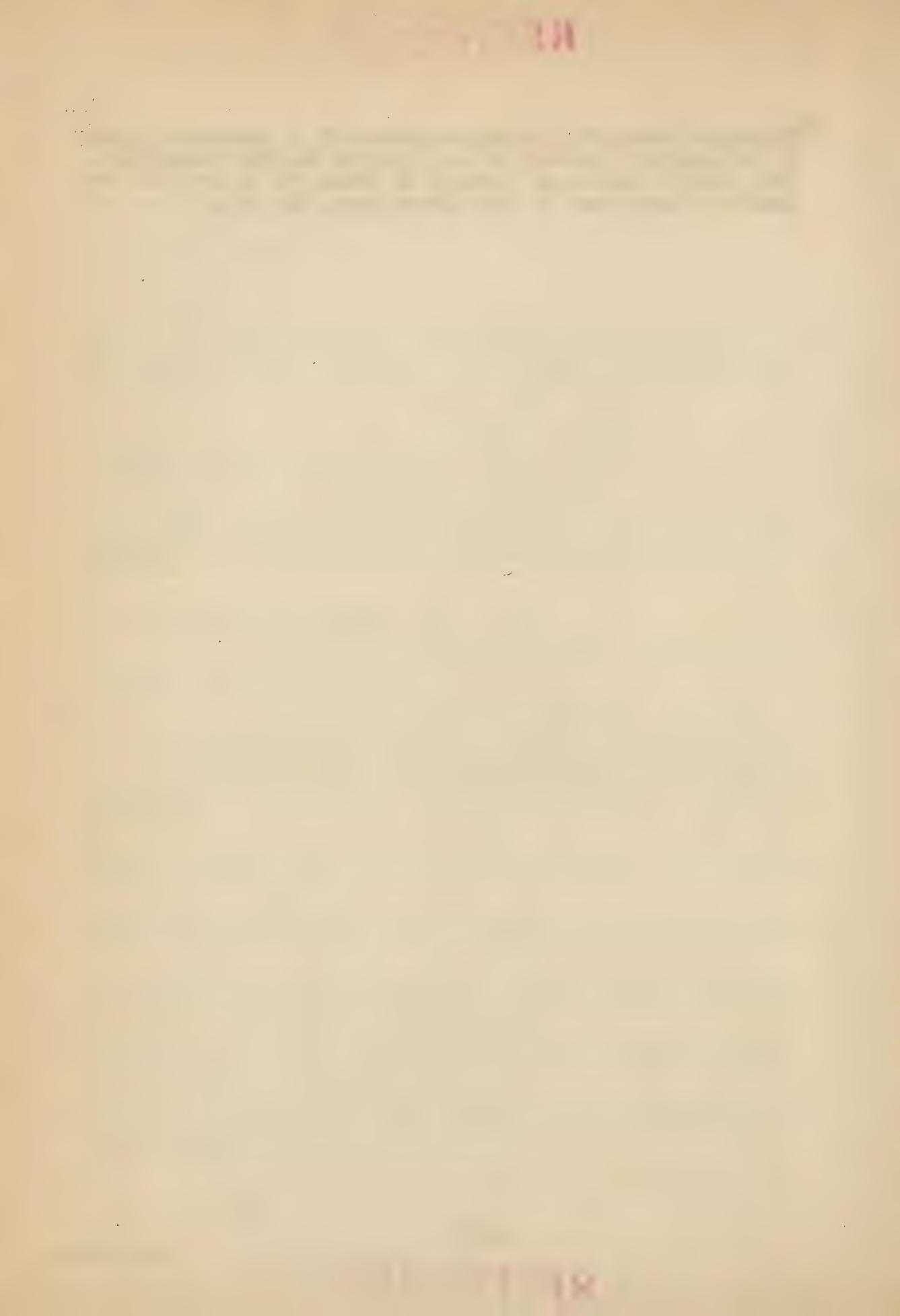
73 Brigadier General Walter D. McCaw to The Adjutant General, April 10, 1925 (Historical Division, SGO, 381.-1).

~~RESTRICTED~~

RESTRICTED

74 Lieutenant Colonel R. D. Harden to Colonel E. E. MacMorland, Office of The Assistant Secretary of War, November 21, 1938 (Record Room, SGO, 381.-1); Lieutenant Colonel R. D. Harden to the Army and Navy Munitions Board, June 30, 1939 (Record Room, SGO, 441.).

RESTRICTED



RESTRICTED

CHAPTER II

SUPPLYING THE EXPANDING ARMY 1939-1941

Introduction

From the outbreak of the war in Europe, September 1939, until the attack on Pearl Harbor, the United States gradually called into being a portion of its great military strength and prepared to enter the conflict if necessity should so dictate. This period of more than two years was marked by a succession of important developments abroad, each of which served as a warning to the United States and caused Congress and the President to push forward our military preparations. Influenced by this background of world events and strengthened by the larger appropriations Congress provided, the Medical Department slowly transformed its supply operations from a peace to war basis. From the standpoint of supply officers, this two-year period was a difficult one. It was neither peace nor war, but a mixture of both. There was no "M-day" on which procurement plans had been based; instead, there was a series of developments which seemed calculated to lead to an "M-day", but now it is clear that mobilization had begun and was far advanced long before Japanese bombs struck Pearl Harbor.

The purpose of the present chapter is to trace the efforts of the Medical Department to procure, store and distribute the large quantities of supplies and equipment needed by the growing Army. These efforts resulted in preparations for war; but it is well to remember that they were undertaken as day-by-day tasks to satisfy growing current needs and to make modest increases in the War Reserve. No man knew that the war would directly involve the United States; therefore, preparations for war were halting and uncertain.

Administrative Organization

The fiscal and supply activities of the Office of The Surgeon General were performed, for many years, in the Finance and Supply Division¹ headed by a colonel or lieutenant colonel of the Medical Corps. This division was composed of four sub-divisions—Supply, Finance, Field Civilian Personnel, and Procurement Planning. The Supply Sub-division was still further divided into four branches—Stock Control, Procurement Requirements, Procurement Control, and Transportation; and the Procurement Planning Sub-division consisted of five branches—Total Requirements, Specifications, Priorities, Raw Materials, and Allocations.² It should be made clear, however, that this organization of branches existed largely on paper. As

RESTRICTED

~~RESTRICTED~~
1939
subsequent paragraphs will indicate, neither civilian nor military personnel was available in 1939 to staff such a number of branches.

The basic organization sketched above underwent only a few changes during this period, the most important of which was the elimination of the Procurement Planning Sub-Division in the fall of 1941 when that activity was absorbed by current procurement. In May 1941, an apparently thorough-going reorganization established seven sub-divisions and four staff agencies, but these changes were effected by transforming branches into sub-divisions, and hence did not reflect any important changes in supply activities. Another reorganization occurred in October 1941, when the Finance and Supply Division was organized into three branches--Finance, Civilian Personnel, and Supply. The Supply Branch, in turn, was divided into a Production Planning Sub-Division and a Purchase, Storage, and Issue Sub-Division. Aside from reversing the relative standing of branches and sub-divisions in the administrative scale, this reorganization calls attention to the enhanced importance of current supply operations and to a great increase in civilian personnel.³ Both military and civilian personnel grew steadily during this period. When Germany invaded Poland in September 1939, 7 officers were on duty in the Finance and Supply Division, and 27 civilians were employed. By July 1, 1940, officers had increased to 8 and civilian personnel to 49. When the United States formally entered the war, there were 16 officers in the Division and 201 civilian employees.

The supply activities of the Surgeon General's Office, during this period, were largely of a planning and supervisory nature. The actual procurement, storage, and issue of supplies was performed by field installations in a manner to be more fully described later in this chapter. It was the Finance and Supply Division, however, which maintained close contacts with the Office of the Assistant Secretary of War, and, later, with the Under Secretary of War. As the rearmament program gained speed, these agencies of the War Department observed the procurement progress made by the technical services and enunciated broad policies for their guidance. The Finance and Supply Division received these directives, interpreted them to its field installations, and compiled the many reports required by higher authority. In addition, the Division exerted itself in rendering aid to depots, procurement officers, and manufacturers who needed help in obtaining preference ratings, component parts, labor, machine tools, transportation, and other essentials in the fabrication of medical supplies.

Procurement Planning

Before beginning a discussion of procurement, which will occupy so many pages of this monograph, it may be well to show how procurement planning was continued in this period of war preparation. The

RESTRICTED

computation and revision of requirements still occupied much of the time of the Procurement Planning Sub-Division, and by July 1940 figures for the troop basis of the Protective Mobilization Plan (approximately 1 million men) had been completed, together with estimates of expenditures by months.⁴ For raw materials and for critical and essential end-items, requirements figures were also prepared.⁵

The system of "facility allocations", which originated in the 1920's, was continued in this period. As of August 1939, the Medical Department had facility interests in 633 firms, 464 of which were single allocations.⁶ Total allocations were decreased to 592 in 1940, and they remained the same in 1941.⁷ It was necessary, of course, to survey all new facilities allocated to the Medical Department, in order to estimate their productive capacity, and to re-survey facilities which had not been recently examined. This work went forward rapidly. In the fiscal year 1940, 96 original and 313 re-surveys were made, and in 1941 there were 112 original surveys and 181 re-surveys.⁸ During this period, a better method of estimating productive capacity was being increasingly utilized. Production studies, based upon actual orders, were received from nine facilities, dealing with their capacity to produce surgical instruments, medical chests, splints, individual field equipment, canvas pouches, litters, and collapsible field litter carriers. Through the cooperation of committees appointed by trade associations, studies were made of other commodities which experience had shown would be difficult to produce in sufficient quantities, including surgical dressings, surgical needles, gas cylinders, dental supplies, and chemical glass.⁹ These studies were closely related to, and somewhat dependent upon, "bills of materials" submitted by manufacturers, which contained estimates of the quantities of raw materials needed to produce the required medical supplies and equipment. Although some of this information was obtained from "accepted schedules of production," it was considered more prudent to send the manufacturers a list of items and request an estimate of the quantities of raw materials required to manufacture a specified number of these items. Raw material requirements thus received were consolidated in the Finance and Supply Division and were forwarded to the National Defense Advisory Commission and to the Under Secretary of War.

Procurement planning officers continued to present schedules of production to allocated facilities, but this method of estimating production was gradually falling into disrepute, both in industry and in procurement planning offices. A number of schedules, it appears, had been accepted and signed by manufacturers who were either unable or unwilling to make a careful estimate of production. Such schedules, therefore, represented little more than the hopes of procurement planning officers, casually rubber-stamped by factory managers. At times, moreover, factory executives grossly over-estimated their productive possibilities, hoping thereby to make a favorable impression

RESTRICTED

~~RESTRICTED~~

upon those who, in the future, would grant war contracts. In 1939, The Surgeon General was informed by the Office of the Assistant Secretary of War that a number of senior executives, in plants allocated to the Medical Department, had no knowledge of the schedules of production applicable to their plants. The Medical Department was urged, therefore, "to secure a review of scheduled war loads, which has been impossible in the past because of the more or less perfunctory attitude of some plant executives in procurement planning."¹⁰ One alert industrial leader, who maintained close relations with the Medical Department, returned a schedule of production on surgical instruments, after making a number of changes based on current production. "A superficial survey of the status of surgical instrument manufacturing in the United States," he declared, "would indicate to the writer that the schedules of production used for procurement planning would go completely amiss." Unless changes were made, "a very serious breakdown" in the supply of these instruments would occur, and both civilian hospitals and the Medical Department would be gravely embarrassed.¹¹

Another method of obtaining important production data, and of training industry in the manufacture of war materials, lay in the "educational orders" program which was authorized in 1938. An act of Congress of June 1938 appropriated \$2,000,000 per year for the five succeeding fiscal years to be applied to this program, and subsequent acts increased the total thus appropriated to nearly \$50,000,000.00. Seeking to share in this appropriation, the Medical Department requested in April 1939 that it be allowed to give educational orders" for surgical instruments, first aid packets, x-ray equipment, and certain items of field equipment. Requirements for all these articles were in excess of productive capacity, for they were either non-commercial in their nature or had previously been imported. This program, which would have cost approximately \$500,000, was rejected by the Office of the Assistant Secretary of War on the ground that the items submitted had a "low industrial priority" and that all the technical problems could be solved within six months.¹² Later in the year, a request was made for \$25,000 to develop field x-ray equipment through educational orders, but this also was refused.¹³ No further reference to educational orders has been found. It is probable, therefore, that the Medical Department never received an allotment for this purpose.

In its efforts to procure and train personnel for supply duties, the Department was more successful. A few days prior to the German invasion of Poland, a "group of Reserve Officers especially suited to industrial preparedness" were commissioned and assigned to the Finance and Supply Division. Plans were made for them to receive training in the offices of the Assistant Secretary of War and The Surgeon General and in Medical Department field installations.¹⁴ The Army Industrial College continued to train a number of Medical Corps officers. Three Regular Army officers were graduated in 1940,

~~RESTRICTED~~

RESTRICTED

and in 1941 four Regular Army officers and eight Reserve officers finished the course. This made a grand total of 56 medical officers to receive training in the Army Industrial College during the years 1924-1941.¹⁵ In addition, special efforts were made to provide training for Reserve officers who had not relinquished their civilian occupations. In 1940, 23 of these officers took a course of instruction in procurement at the Medical Section, New York General Depot, for which they had been prepared by a correspondence course given a few months earlier.¹⁶

Closely connected with procurement planning, and of critical importance in supply preparedness, was the Medical Department War Reserve. In the previous chapter, the origin of this reserve was sketched, and an effort was made to show how this collection of medical supplies was assembled and stored after World War I. It remains for the present chapter to indicate the status of the War Reserve immediately prior to the United States' entry into the war.

Hastily assembled from unbalanced stocks at the conclusion of World War I, the War Reserve was inadequate during the 1920's and 1930's; and it was still inadequate, both in quantity and quality, when the Japanese struck Pearl Harbor. It was poorly assembled and packed, it contained obsolete items, and it was not large enough to provide for even modest war-time needs. The Medical Department made repeated efforts, after the outbreak of the war in Europe, to obtain funds to renovate and enlarge the War Reserve, but sufficient funds were not provided. A letter to the Office of the Assistant Secretary of War in May 1940 emphasized "that the state of the Medical Department equipment for War is such that the I.P.F. [Initial Protective Force] is not provided with FACILITIES FOR HOSPITALIZING THE SICK AND WOUNDED. In none of the directives concerning the I.P.F. has the Medical Department been authorized to provide the necessary evacuation hospitals, station hospitals or general hospitals which would be required for this purpose." In only one respect were Medical Department supplies and equipment adequate: It could complete the combat equipment "required by the Medical Department to take the field with the I.P.F. at 462,000 men."¹⁷

At about this same time The Surgeon General, in a nine-page letter, pointed out to The Adjutant General the utter inadequacy of the War Reserve. "There devolves upon me, as Surgeon General of the Army," he declared, "the inescapable duty of bringing to the attention of higher authority, the unpreparedness of the Medical Department for war." Listing the unit assemblies in the War Reserve (which included general, evacuation, surgical, and station hospitals, together with a wide variety of dispensary equipment), he showed that it was far below the requirements. "Theoretically," he asserted, "there are available 54,750 fixed beds. But it must be clearly

RESTRICTED

RESTRICTED

understood that the supplies and equipment are of 1918 vintage, incomplete in modern operating room equipment, wholly deficient in essential laboratory equipment, totally lacking in X-ray, physical therapy and hydro-therapy equipment, and stocked with scientific items now obsolete and rapidly becoming obsolescent." This state of affairs had been caused by the lack of money. "No funds for medical preparedness were allotted the Medical Department since the close of the World War until 1940 when the sum of \$295,000 was appropriated and used in the replacement of obsolete items and modernization of combat equipment required for the I.P.F." In November and December 1939, estimates were submitted to the Budget Officer, War Department, of funds needed to complete the shortages for the Protective Mobilization Plan (\$2,696,685) and to provide essential items for an enlarged Regular Army and National Guard (\$5,327,000). Both programs, however, were disapproved by higher authority. The Surgeon General then presented a detailed statement of the hospital assemblies urgently required upon mobilization, and which, because of delay in procurement, should be built up prior to the war. "I have not," he concluded, "at the War Department's disposal for any emergency one complete, modern 1,000 bed general hospital for instant dispatch."¹⁸

These strong representations were not without effect. During the fiscal year 1941, the Medical Department received supplemental appropriations which enabled it to renovate a portion of the War Reserve and to add some new units. In the spring of 1941, it was estimated that by June 30 the Medical Department would have in the War Reserve the following assemblies:

<u>Name</u>	<u>Number</u>
General hospitals, 1000-bed	32
Evacuation hospitals, 750-bed	16
Station hospitals, 250-bed	22
Surgical hospitals, 250-bed	8
Hospital unit cars	6
Veterinary evacuation hospitals, 150 patients	6
Veterinary general hospitals, 500 patients	4

In addition, rapid progress was being made in the procurement of critical items for 70 general hospitals, 1000-bed.¹⁹

Procurement of Medical Supplies, July 1, 1939-December 7, 1941

Although procurement planning and additions to the War Reserve continued during this period, the most important duty of the Finance and Supply Division was the procurement of medical supplies and equipment for an expanding Army and National Guard. On September 8, 1939, the President authorized the Regular Army to increase

**27
RESTRICTED**

RESTRICTED

its strength to a total of 227,000 enlisted men, and a proportionate increase in officer personnel was ordered. At the same time, authority was granted to augment the National Guard to a total of 235,000 men.²⁰ Additional increases in the Regular Army and National Guard were made during 1940, and in the summer of that year the National Guard was called into the Federal service. On July 1, 1940, the Medical Department was procuring supplies and equipment for a military establishment of 800,000 men. Then the Selective Service Act was passed which provided for the largest peace-time Army in the nation's history--1,800,000 men. Fortunately, this mobilization was gradual and extended over many months; but, even so, the great increase in Army strength placed severe burdens upon a procurement service which had been geared to peace-time needs.

For many years, the procurement of medical supplies and equipment had been concentrated in the Medical Section of the New York General Depot. In that city and in the industrial region which extended from Massachusetts to Maryland, a vast majority of these supplies were manufactured. For this reason, procurement continued to be concentrated here during the period now under review, as well as in the war period which followed. In 1939 and 1940, the procurement of medical supplies and equipment was distributed among four depots in the following manner:²¹

Name of Depot	Per Cent Procured	Items Procured
Medical Section, N. Y. Gen'l Depot	90	All items
St. Louis Medical Depot	6	Mainly veter- inary items
Medical Section, San Francisco	3	Mainly drugs, biologicals, surgical instruments and hospital supplies
Medical Section, San Antonio General Depot	1	Mainly drugs and biologi- cals

In July 1940, the Medical Department momentarily succumbed to the praises of decentralize procurement, sung so loudly by other technical services, and decided to accomplish a larger share of its buying in St. Louis and San Francisco.²² Within a few months, however, the new venture had proved itself to be impracticable. There developed a pronounced tendency towards competitive procurement between the New York and St. Louis offices, with the result that contracting industries became confused as to Medical Department requirements. The plan was abandoned, and New York once more became the center for the bulk of Medical Department procurement.²³

The purchasing division at New York, in July 1939, consisted of

RESTRICTED

RESTRICTED

a lieutenant colonel, Medical Corps, and 15 civilian employees. As larger and larger purchase authorizations were received from the Finance and Supply Division in Washington, it became necessary to increase the personnel in New York and to provide it with more office space. By 1940, a total of six officers and 42 civilians were assigned to the purchasing division, and by May 1941, twelve more civilians had been added. Shortly before the United States entered the war, the division was divided into 13 sections, staffed by 10 officers and 97 civilian employees. It occupied 9,000 square feet in the Kenyon Building, Brooklyn, New York.²⁴

Purchasing officers at New York, and in other depots which procured medical supplies, maintained a Bidders' List which included the names of all known manufacturers and dealers who were capable of filling Medical Department orders.²⁵ All contractors who had fulfilled Medical Department contracts were placed on the Bidders' List; and prospective bidders were placed on the list if they presented sufficient information to convince the Department that they could supply the items needed. Manufacturers or dealers who wished to be added to the list received a description of the standard items purchased by the Medical Department. Prospective bidders checked the items on which they wished to bid, and their names were then placed on the Bidders' List at purchasing depots to receive notices of future purchases of the items they had checked.²⁶ A number of prospective bidders were found in other ways. The Federal Reserve System, for example, undertook to uncover manufacturing sources in its various districts and suggested many names to the Finance and Supply Division in Washington.²⁷ The Office of Production Management, also, exerted itself to acquaint manufacturers with the needs of the Army. The Division of Contract Distribution, of that office, obtained the names of manufacturers who had idle machinery and were thus able to accept either sub-contracts or prime contracts. Prospective sub-contractors were referred to prime contractors, and the latter were brought to the attention of the purchasing officers of the Army.²⁸ Grateful for this aid in locating manufacturing facilities, the Finance and Supply Division, of the Surgeon General's Office, sent a copy of the Medical Department Supply Catalog to each of twelve district offices of the Defense Contract Service, to better acquaint them with the types of supplies and equipment needed.²⁹

Procurement planning, during the 1920's and 1930's, had been conducted upon the assumption that the technical services would place practically all their contracts with facilities which had been allocated to them. In this manner, it was hoped to avoid competition among purchasing officers of the different branches of the military establishment, for competition had delayed procurement and rendered it costly during World War I. But this assumption of procurement planning was quickly abandoned when the rearmament program of 1940-1941 got well underway, for neither the President nor the Congress established

RESTRICTED

RESTRICTED

the economic controls which were necessary to put the allocations system into effect. The Bidder's List of the Medical Department was not restricted to allocated facilities; it contained the names of all manufacturers and dealers who could furnish medical supplies, regardless of allocation. There was, however, a distinct correlation between facilities utilized by the Medical Department and facilities previously allocated to it by the Assistant Secretary of War, although there seems to have been no determined effort to concentrate procurement in allocated facilities. Early in 1941, the Assistant Secretary of War made sporadic efforts to hold the technical services within their allocations, and on one occasion he questioned an order for a large quantity of gas cylinders on the ground that the facility was not allocated to the Medical Department.³⁰ This caused a mild flurry of fact-finding, which produced the following table, showing the geographical distribution of Medical Department contractors and their allocation status during the calendar year 1940:

<u>State</u>	No. of <u>Contractors</u>	<u>State</u>	No. of <u>Contractors</u>
California	2	Minnesota	4
Connecticut	14	Missouri	7
Delaware	1	New Hampshire	1
District of Columbia	1	New Jersey	31
Georgia	3	New York	81
Illinois	15	North Carolina	1
Indiana	3	Ohio	18
Kentucky	2	Pennsylvania	24
Maine	1	Rhode Island	1
Maryland	2	South Carolina	6
Massachusetts	19	Tennessee	2
Michigan	8	Virginia	1
		Wisconsin	5

Of the 253 facilities utilized, 172 (or 68 percent) had been allocated to the Medical Department.³¹

When the circumstances surrounding procurement during this period are considered, it is not strange that the system of allocations was not enforced, for it had not kept pace with the needs of the technical services. New factories had been established, old factories had been converted to war production, and the Medical Department, in common with other technical services, had developed or adopted new items. These changes had not been matched by a thorough revision of the allocations, and thus the allocated facilities were not adequate for War Department needs.

Another important portion of procurement planning was adhered to even less closely when the Medical Department began its heavy pro-

~~RESTRICTED~~

curement. It will be remembered that requirement figures were computed for each item in the supply catalog, and that schedules of production were prepared which apportioned these requirements among the allocated facilities. It is sufficient to say, briefly, that the procurement of this and subsequent periods was not based upon the requirements which had been computed during procurement planning days; and the schedules of production were not converted into war contracts. Rather, this part of the procurement plans was rejected as inadequate to the needs of 1940-1941.³² There were many reasons for this decision, some of which are not clearly expressed in available records. It is apparent, however, that procurement officers distrusted the requirements figures and considered them to be unrealistic. In truth, they had been computed in anticipation of an 11-day, when the nation would spring to arms and a deluge of war orders would issue from the Army. But the slow and steady increase in procurement during 1940-1941 did not fit into this pattern. Consequently, it was very difficult to determine what proportion of the planned requirements should be procured at any particular time. Then, when procurement did reach a flood tide in 1942 and 1943, the records of stocks in the depots and in the hands of troops were so faulty and disorganized, the purchasing officers could³³ not tell what part of the anticipated requirements had been procured.

Instead of relying upon computed requirements figures, the Finance and Supply Division, until 1942, placed its trust in the "depot replenishment system." Employing Elliott-Fisher bookkeeping machines, each depot submitted to The Surgeon General's Office a stock report which showed the receipts and issues of each Medical Department item. Semi-annual reports were submitted for non-deteriorating items, while deteriorating items were reported upon quarterly. These reports, covering approximately 4,500 items, were posted to consolidated stock cards with Burroughs accounting machines in The Surgeon General's Office, and from this information the probable issues during the next reporting period were calculated.³⁴ To the probable issues in each item were added the initial supplies and equipment needed to equip new units which were being formed. Thus was obtained the "normal" quantities of each item which should be procured. During this period, however, the Army was quickly expanding; and, although initial equipment could be calculated with fair accuracy, it was much more difficult to compute the quantities of supplies and equipment needed as replacements. Indeed, satisfactory replacement factors were never evolved. It was necessary, therefore, to increase the "normal" quantities of each item by an amount deemed sufficient to satisfy needs that were growing at an important but undetermined rate. This "hit and miss" method, as it was described by some supply officers, continued to characterize procurement until July 1942, when the Army Supply Program went into effect.³⁵

The procurement requirements, estimated in the manner described

~~RESTRICTED~~

RESTRICTED

above, were transmitted to the purchasing depots in the form of purchase authorizations. At this point, the actual purchasing process began. Invitations to bid were issued to all firms on the Bidders' List who were qualified to bid upon the item or items to be purchased. After the lapse of a period which varied from 15 to 60 days, depending upon the urgency of the purchase, the bids were opened and a contract was made with the lowest bidder. This was the system which had been employed during the unhurried times of peace. It had provided a sufficient quantity of supplies at the time they were needed and at the lowest possible prices; but it was not adapted to war, nor to hasty preparation for war. Under these conditions, price becomes a secondary factor and time of delivery and quantity of supplies become prime considerations. This period is marked, therefore, by departures from competitive bidding and by the adoption of negotiated contracts which were designed quickly to obtain from industry the vast quantities of supplies and equipment needed. In July 1940, an act of Congress gave the technical services enlarged authority to make open market purchases,³⁶ and thus to negotiate contracts without competitive bidding.³⁷ Although advertisements for bids and the award of contracts to the lowest bidder continued on a smaller scale, the Medical Department promptly utilized its new power to negotiate contracts. In August 1940, for example, a meeting was held in the New York depot, attended by representatives of surgical dressings manufacturers. Purchasing officers outlined the huge requirements of these items and emphasized the necessity of procuring them with all possible speed. Representatives were urged to submit bids promptly and were informed that contracts would be awarded on the basis of (1) delivery time, (2) price, and (3) production capacity of each firm. On the following day, when the meeting was resumed, the requirements in surgical dressings were allocated on a percentage basis to the firms represented. Within two weeks contracts had been drawn up and signed, and the mills began to produce the great quantities needed.³⁸

In all purchases made throughout this period, whether by competitive bidding or negotiation, only three contract forms were utilized by the Medical Department: (1) QMC Form No. 307, Delivery Order, (2) QMC Form No. 308, Purchase Order, and (3) Standard Government Form No. 32 (Supplies).

The Delivery Order was used to obtain supplies from other technical services, and it was utilized, also, to place orders for supplies against indefinite quantity contracts.

The Purchase Order was the most widely used form during this period. It was employed in orders involving not more than \$25,000 and when the delivery or performance time did not exceed 60 days.

The Standard Government Form No. 32 (Supplies) was the formal contract used when the amount involved exceeded \$25,000 or when

RESTRICTED

~~RESTRICTED~~

delivery or performance time was more than 60 days. As such, it was widely utilized in the large contracts for surgical dressings, surgical instruments, x-ray equipment, sterilizers, and other items which were purchased in great quantities from large producers. It was used, also, in the indefinite quantity contracts by which ³⁹ x-ray film, biologicals, and parenteral solutions were procured.

In the foregoing paragraphs the procedures and machinery of procurement have been described. It now remains to be shown how these were employed in purchasing the large quantities of supplies and equipment needed by the Medical Department, and how the machinery was occasionally greased when the ever-increasing load of procurement imposed heavy burdens upon it. One of the first steps was to establish and maintain a close cooperation between The Surgeon General's Office and the manufacturers of medical supplies. As early as 1939, The Surgeon General established advisory committees on drugs, surgical instruments, and other types of supplies and equipment. These committees, composed of representatives of the various industries, closely cooperated with the Medical Department and offered valuable advice on the best methods to be employed in procuring large quantities of supplies. These advisory committees continued to function until September 1940, when the Army and Navy Munitions Board added them to its own advisory staff.

The increased requirements, which must be satisfied by procurement, soon became obvious during this period. The purchase authorizations issued in the mid-summer of 1939 were two and one-half times as large as those issued in previous summers, and that represented only a modest beginning.⁴⁰ Still, it was believed that industry could easily carry the load, except for surgical instruments and a few other items in which trouble had long been expected. In July 1940, the chief of the Finance and Supply Division anticipated no great difficulty in procuring needed supplies for the then contemplated program. "It is not contemplated that additional production facilities will be required," he assured the Assistant Secretary of War. "Utilizing the results of the past years of procurement planning and basing our requirements on accepted schedules of production, it is contemplated to test out the results of our procurement planning by endeavoring to select those contractors and plants with whom we hold accepted schedules of production."⁴¹ Even as late as February 1941, the Chief of the Supply Service continued to be in the same sanguine mood. "The Medical Department of the Army," he declared, again addressing the Assistant Secretary of War, "is in a peculiar situation entirely different from some of the larger supply services, in that better than four thousand items are distributed over many classes of industry and again doled out to an increasing number of facilities. . . . Since the majority of the items are commercial in character, . . . no plant expansion is required except in the manufacture of surgical instruments, . . ."⁴²

~~RESTRICTED~~

RESTRICTED

Even so, small troubles soon appeared. It became necessary late in 1939 to reduce to 15 days the period of advertising for bids.⁴³ In order to expedite the delivery of goods, the New York depot began to assess liquidated damages for protracted deliveries, and continued to employ that device until higher authority abolished it.⁴⁴ By the spring of 1941 delays in delivery had reached serious proportions. Believing that they were caused, to an appreciable extent, by the failure of prime contractors to expand by sub-contracting, the Finance and Supply Division issued orders designed to correct the evil. Each procurement district was directed to obtain full information from the district offices of the Defense Contract Service, Office of Production Management, in regard to sub-contracting facilities. This information was to be made available to prime contractors. In addition, when projected deliveries did not meet requirements, purchasing officers were ordered to request a list of the component parts for which the prime contractor did not have sufficient production capacity. This list was to be forwarded to the district procurement office, where an attempt would be made to interest sub-contractors in manufacturing the needed parts.⁴⁵

In the procurement of surgical and dental instruments, the most protracted and serious delays were experienced. For many years, the United States had been dependent upon German manufacturers for the bulk of surgical instruments. This dependence was interrupted by the expansion of domestic manufacturers during World War I; but early in the 1920's, Germany once more captured the United States market and held it until the British blockade was established in September 1939. The few surgical instrument factories in the United States were then presented with an increasing demand, from both military and civilian hospitals, which they could not satisfy. Immediate efforts were made to expand production, but this remedy was not an easy one. Machine tools were difficult to procure; forgings were not available in the large numbers required; and, even more serious, the skilled labor employed in the manufacturing processes could not be quickly trained.

At the beginning of the emergency, this problem was still further aggravated by the export of large quantities of surgical instruments to France, England, and Latin America. During the first four months of 1940, surgical instruments to the value of \$860,000 were exported—an increase of more than 25 percent over 1938.⁴⁶ Various relief organizations, during 1940 and 1941, acquired surgical instruments and other medical supplies and shipped them to France and Great Britain. This was controlled to some extent by placing "British Relief," "Bundles for Britain," and three other organizations under the control of the Red Cross.⁴⁷ In the meantime, the civilian demand for instruments had practically depleted the manufacturers' and the wholesale importers' stocks of standard patterns.⁴⁸

It was into this restricted market that the Medical Department

RESTRICTED

~~RESTRICTED~~

entered when the rearmament program compelled it to increase the procurement of surgical instruments. In 1938 "a sizeable quantity" of stainless steel instruments were purchased,⁴⁹ and in the following year a contract for \$60,000 worth of surgical instruments was signed with the J. Sklar Manufacturing Company, "This order simulated a war-time contract in many respects," one of the supply officers declared, "and it is believed that the trials and tribulations experienced by this concern to complete the order would be of valuable information to this office."⁵⁰ Immediately after receiving the contract, Sklar exerted itself to expand production. Nearly 200 young, inexperienced men were employed and trained as apprentices, and as soon as practicable a mass-production system was developed. Within less than two years, the apprentices had become specialists in one or two steps of the manufacturing process--cutting, grinding, fitting, polishing, inspection.⁵¹

It had long been known, however, that the regular manufacturers of surgical instruments would be unable to fill Medical Department needs. In 1941, following procurement plans prepared in previous years, contracts were made with manufacturers of silverware. The International Silver Company, Oneida, Ltd., and the Williams Brothers Silver Company undertook the manufacture of hemostatic forceps, and a dozen or more smaller producers turned their attention to less complicated but badly needed surgical instruments.⁵² A large number of jewelry manufacturers wished to convert to the manufacture of surgical instruments, but the increasing scarcity of machine tools and skilled labor compelled them to be contented with polishing instruments made by the regular producers.

The letting of contracts was only a first step in the procurement of surgical instruments and other medical supplies and equipment needed by the Army. After the manufacturer had a contract, he frequently found himself enmeshed in difficulties from which he could not emerge unaided. Certain raw materials and component parts, essential to the manufacturing process, were scarce and were becoming scarcer. Skilled labor was difficult to obtain and even more difficult to hold, for the Selective Service boards were inducting large numbers of young men, and the holders of cost-plus contracts, in the absence of man-power controls, were pirating labor in the best traditions of the first World War.

Frequent strikes, although they were of short duration, still further complicated the labor shortage. In addition, machine tools and related equipment, without which the manufacturing plants could not be expanded, were increasingly difficult to procure. These and other problems were insuperably connected with an economy geared to peacetime needs, on which the heavy burdens of war are suddenly thrust. They could not be individually solved, each manufacturer for himself, for such "solutions" still further dislocated the indus-

~~RESTRICTED~~

RESTRICTED

trial organization of the country. It became necessary, therefore, to establish government controls, which would ration scarce machinery, materials, and labor, and would provide assurance that they were economically employed in the defense program.

It is unnecessary in the present work to describe these controls or to show how they were intended to effect their purpose. It is sufficient to say that manufacturers holding contracts for the production of medical supplies and equipment looked upon the Medical Department as an agency which would present their problems to the various governmental organizations in charge of the war economy, and would exert its influence to obtain whatever was needed to render possible the fulfillment of the contracts. And it should be added that the Medical Department cheerfully accepted this responsibility, and from 1939 until the end of the war it aided the contractors in every way that conditions permitted. The earliest and most frequent appeals for help were the contractors' requests for preference ratings (or "priorities"), which would enable them to purchase scarce materials and machinery. In response to these requests, the Finance and Supply Division conferred with representatives of the Army and Navy Munitions Board, the National Defense Advisory Commission, the Office of Production Management, and other "super-agencies" which had been established to control the distribution of scarce materials. In some instances, supply officers were able to expedite production merely by obtaining a preference rating. In the summer of 1941, for example, x-ray equipment was placed upon the "priorities critical list," and preference ratings were extended to Medical Department contractors.⁵³ More frequently, however, the manufacturer already possessed a preference rating but was unable to obtain delivery. This was occasioned by the increasing inflation of preference ratings, which rendered them of less and less value as the rearmament program gained headway. Manufacturers of hospital sterilizers held an A-1-d rating for brass shells, but could not obtain delivery until nearly six months after an order was placed.⁵⁴ An A-1-i rating had once sufficed for the prompt delivery of aluminum, but by May 1941 it was of little value in obtaining that critical material. When confronted with these situations, the Finance and Supply Division used its influence with the appropriate government control agency to obtain a higher preference rating.

Not all the requests for preference ratings came from manufacturers who needed the materials to complete Army contracts. Very frequently during this period, manufacturers who were producing for the civilian market appealed to the Medical Department for aid, and these appeals did not go unheeded. Army contracts, during 1940 and 1941, were not sufficiently large to utilize fully the plant capacities of the manufacturers of medical supplies and equipment. Unless these manufacturers could obtain preference ratings for the civilian production, the plants would be compelled to restrict their operations and discharge some employees. Such a result, it

RESTRICTED

~~RESTRICTED~~

was believed, would greatly embarrass the Medical Department, for it anticipated much larger requirements in the near future and wanted the industry to be capable, upon very short notice, of satisfying these requirements. "The maintenance of civilian production," declared The Surgeon General, "is the only assurance that I have that experienced personnel and even plants will be available for our requirements should we become engaged in a major emergency"⁵⁵ For this reason, therefore, the Medical Department frequently used its influence to obtain preference ratings for materials used in civilian production. This not only accomplished the practical purpose set forth above; it also aided in the maintenance of close and friendly contacts with manufacturers.

Efforts were made, also, to aid contractors in holding an adequate labor supply. Most of the items of medical supply and equipment were produced in a large number of plants, where sporadic labor difficulties might delay small shipments but would not materially affect the defense program. There were, however, several exceptions to this general statement. The manufacture of surgical instruments, dental instruments and equipment, optical glass, and x-ray equipment was concentrated in a few large factories. Any disturbance in the labor supply of these factories, therefore, would materially affect the procurement of critically needed items.⁵⁶ Anticipating the possibility of strikes in these and other plants, the Finance and Supply Division, in April 1941, directed purchasing and contracting officers to insert the following clause in all future contracts and purchase orders:

Whenever an actual or potential labor dispute is delaying or threatening to delay the timely performance of this contract, the contractor will immediately give notice thereof to the Contracting and Purchasing Officer and Labor Representative of the Office of The Surgeon General. Such notice will include all relevant information with respect to such dispute.⁵⁷

Even before this action was taken, at least two labor disputes had seriously disrupted production for the Medical Department. A brief strike in the Staten Island plant of the S. S. White Dental Manufacturing Company involved nearly 600 workers in March 1941, and delayed the completion of contracts totalling \$404,000.⁵⁸ Early in April 1941, more than three-fourths of the employees at the J. Sklar Manufacturing Company struck and did not return to work until a month had elapsed. In the meantime, the production of surgical instruments for the Medical Department was practically suspended.⁵⁹ Another serious strike began in June 1941, and for more than eight weeks closed the Long Island plant of the G. F. Richter Manufacturing Company, one of the largest producers of surgical instruments in the United States. Medical Department contracts to the value of \$400,000 were affected.⁶⁰ A strike of only a week's duration stopped production

RESTRICTED

of the Picker X-ray Corporation, of Cleveland, Ohio, the only manufacturer of the field x-ray unit. When one of the executives informed Lieutenant Colonel Shook that the strike had been amicably settled, he added: "I lay a good deal of the responsibility for this settlement at your door and believe it was through your efforts that it was brought about so quickly."⁶¹

In most instances, however, the Medical Department could do little to prevent or end strikes. When informed of labor disturbances, it promptly reported them to higher authorities in the War Department and asked that efforts be made to end the work stoppage. Officers of the Army and Navy Munitions Board or the Office of the Under Secretary of War then appealed to both management and the workers to effect an early settlement. Nor could the Medical Department exercise much influence in stemming the growing evil of labor "piracy," which disrupted production schedules in the plants of its contractors. The Hospital Supply Company and the J. Sklar Manufacturing Company, of New York, lost a number of skilled workers to the Brooklyn Navy Yard, which apparently was able to pay very high wages. Aircraft manufacturers and government arsenals provided a lure that enticed workers away from plants manufacturing medical supplies. And there were even some instances of Medical Department contractors detaching employees from other Medical Department contractors.⁶² Occasionally, the Finance and Supply Division attempted appeals to the better nature of the more opulent manufacturers, but not until labor controls were established by the War Manpower Commission did this evil diminish.⁶³

The production difficulties sketched in the foregoing paragraphs not only delayed deliveries, but also increased the prices which the Medical Department paid for its supplies and equipment. In November, 1939, one of the procurement officers in the Office of The Surgeon General remarked that prices had greatly increased "during the last few months," and presented the following information to the Assistant Secretary of War:⁶⁴

<u>Class of Supplies</u>	<u>Price Increase</u>
Drugs, Chemicals, Laboratory Stains	19.23%
Surgical Dressings	24.68%
Surgical Instruments	21.05%
Laboratory Equipment and Supplies	19.97%
Dental Equipment and Supplies	5.34%
X-Ray Equipment and Supplies	10.73%
Hospital Equipment and Supplies	11.20%
Veterinary Equipment and Supplies	4.03%
Field Equipment and Supplies	13.04%

RESTRICTED

~~RESTRICTED~~

During the calendar year 1940, prices remained relatively stable, although some increases did occur;⁶⁵ but in 1941 a survey of 103 items indicated a "rather general increase in price," especially in those items fabricated from imported raw materials. Increasing prices were caused also by the rising cost of labor and the elimination of competition, for Medical Department requirements for some items exceeded production capacity.⁶⁶

Total expenditures for medical supplies increased sharply during this period, as shown by the following table:

<u>Fiscal Year</u>	<u>Total Expenditures</u>
1939	\$ 2,553,854.00
1940	5,549,728.00
1941	69,135,537.56

A comparison of the amounts spent for the different classes of supplies and equipment indicates, with greater particularity, the increase in expenditures:⁶⁷

<u>Class of Supplies</u>	<u>Fiscal Year</u>	<u>Fiscal Year</u>
	<u>1939</u>	<u>1940</u>
Drugs, Chemicals, Laboratory Stains	\$ 378,966.00	\$ 720,799.00
Surgical Dressings	144,309.00	236,145.00
Surgical Equipment and Supplies	233,378.00	561,253.00
Laboratory Equipment and Supplies	80,624.00	163,137.00
Dental Equipment and Supplies	250,186.00	401,081.00
X-Ray Equipment and Supplies	176,212.00	343,803.00
Hospital Equipment and Supplies	1,126,009.00	2,609,785.00
Veterinary Equipment and Supplies	1,716.00	5,880.00
Field Equipment and Supplies	133,125.00	480,134.00
Medical Books, Journals, Etc.	29,329.00	27,711.00
 Totals	 \$2,553,854.00	 \$5,549,728.00

It should not be assumed, however, that purchasing activity steadily spiraled upward month after month. There was, of course a pronounced upward trend; but there were months in 1939 in which expenditures were greater than in some months of 1941. This is illustrated by the following tabulation of procurement operations of the Medical Section, New York General Dept., which purchased approximately 90 percent of the Army's medical supplies and equipment:⁶⁸

<u>Date</u>	<u>No. of Purchases</u>	<u>Total Value of Purchases</u>
1939, July	239	\$ 66,041.86
August	210	127,279.70
September	232	386,657.90

~~RESTRICTED~~

RESTRICTED

Date	No. of Purchases	Total Value of Purchases
1939, October	334	\$ 746,373.06
	415	914,670.86
	211	296,805.66
1940, January	420	189,594.05
	284	129,806.15
	335	340,027.20
	365	265,250.68
	434	652,860.01
	503	1,070,573.26
	270	446,505.74
	282	555,705.83
	351	2,527,597.13
	407	4,790,876.78
	550	7,536,329.59
	626	5,112,184.60
1941, January	666	3,179,381.14
	486	1,893,677.14
	631	5,589,031.89
	771	4,293,151.19
	717	4,340,626.19
	1866	18,336,547.77
	193	347,693.81
	603	588,448.47
	583	598,311.09
	517	2,050,551.38
	598	3,041,290.38
	742	4,580,382.08

It is probable that this "spotty" record of purchases, revealed by the above figures, was caused partly by the irregularity with which funds were made available. But it is probable, also, that the inadequate records maintained during these years must bear a portion of the responsibility. A procurement officer who was engaged in purchasing a Medical Department item lacked adequate information on the deliveries of that item to the depots, stock on hand at depots, stock on hand with troops, and the stock packed in unit assemblies.⁶⁹ In brief, information which was vital to the procurement program was not readily available. The inevitable result was a "stop and go" system of buying, based upon requirements that were never firm.⁷⁰

It should be made clear, in concluding this section on procurement, that the purchase requirements for the period 1939-1941 were considerably greater than deliveries. This produced a condition of chronic shortages which constituted the most serious problem with which the Finance and Supply Division was faced. In this period of rapid and almost unprecedented expansion, the huge requirements were not fully anticipated. Neither procurement planning officers nor

RESTRICTED

the officers charged with current procurement foresaw the actual supply needs of zone of the interior installations, which at that time were multiplying with such rapidity. In many instances, therefore, procurement was initiated too late to produce the supplies when they were needed. This difficulty was further aggravated by the "procurement lag" --the interval of time elapsing between the acceptance of a contract and the delivery of the supplies--which became longer as shortages of labor and raw materials became more acute.

Storage and Distribution

When the Army began its expansion late in 1939, the facilities for the storage and distribution of medical supplies were geared to serve a small military establishment in the quiet days of peace. The main depot of the Medical Department was located in Brooklyn, New York. This was the Medical Section of the New York General Depot, which was a distribution depot for all states east of the Mississippi river, except Tennessee and Mississippi, and for all overseas garrisons. Located in the heart of the procurement region of the United States and occupying approximately 275,000 square feet, this was the most active of all Medical Department storage centers. The St. Louis Medical Depot was the only branch depot of the Medical Department. It occupied approximately 250,000 square feet on the Army reservation at Second and Arsenal Streets, and served as a distribution depot for the states of Montana, Idaho, Wyoming, Utah, Colorado, North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, Minnesota, Iowa, Missouri, Arkansas, Louisiana, Mississippi, and Tennessee. The Medical Section of the San Antonio General Depot occupied only 55,000 square feet and distributed supplies and equipment to posts, camps, and stations in Texas, New Mexico, and Arizona. The Medical Section of the San Francisco General Depot was the fourth active Medical Department depot. It occupied 60,000 square feet and acted as a distribution center for the states of California, Nevada, Oregon, and Washington. In addition, depots for the storage of the War Reserve were located at Columbus, Ohio; New Cumberland, Pennsylvania; and Schenectady, New York.⁷¹

Into the active depots of the Medical Department, the supplies and equipment were shipped by manufacturers and dealers, who were informed of the proper destination by the contract or purchase order. When received at the depot, the supplies were physically inspected to determine whether the proper quantity had been received and to check conformance with other terms of the contract. A more tally-in accomplished the former purpose, but inspections to determine quality, especially of drugs and biologicals, required laboratory examinations. Samples were withdrawn, therefore, and forwarded to the laboratory of the Medical Section, New York General Depot; and until results of

RESTRICTED

RESTRICTED

the examination were received, the shipments being tested were segregated and not issued.

Supplies and equipment, after being accepted by the depot, were stored according to item number and were available for issue. These issues were made on the basis of three types of requisitions received from the medical supply officers of posts, camps, and stations of the depot's distribution area:

1. Semi-annual requisitions. These were received March 31 and September 30, and were submitted through the Corps Area Headquarters for preliminary editing.

2. Quarterly requisitions. For the most part, they were for deteriorating items, such as drugs and rubber goods, and were submitted through the Corps Area Headquarters on January 1, April 1, July 1, and October 1.

3. Emergency requisitions. Even these, unless they were based upon dire need, were first cleared through the Corps Area Headquarters, and some were even forwarded to The Surgeon General's Office for approval.⁷²

A period of three months was allowed to process the semi-annual requisitions. This lengthy period was required, because all such requisitions were received at the same time, and only a limited number of packers were available in the depots. Post, camps, and stations maintained sufficient stock levels, however, to last until the beginning of the next requisitioning period. The emergency requisitions were filled very quickly, sometimes in the course of a single day; and the quarterly requisitions for deteriorating items were processed promptly.⁷³

It will be observed that the storage and distribution functions of the Medical Department, at the beginning of the rearmament program, were conducted on a small, economical scale. Indeed, economy was a most important feature, for appropriations were not generous; and it was necessary to effect all possible savings. The number of civilian employees was kept very low, depot upkeep expenditures were maintained at a minimum, and shipping methods and routes were selected with economy as the foremost criterion.⁷⁴ But as the size of the Army increased during the period 1939-1941 and as the procurement of medical supplies markedly increased, it became necessary to expand the depot facilities of the Medical Department. The most important part of this expansion occurred in 1941, but a beginning was made in 1940, so that by the end of that year the Medical Department had a total of 1,203,387 square feet of storage space, of which 575,899 square feet were used for current operations and 537,438 were used for the storage of the unit assemblies in the War Reserve.⁷⁵

RESTRICTED

RESTRICTED

During the course of the calendar year 1941 an enormous expansion of depot space occurred. The medical sections and the branch depots, which had been established in prior years, were greatly expanded; and new facilities were leased or acquired by purchase. The San Francisco medical section grew from 60,632 to 462,531 square feet; the Columbus medical section, from 155,025 to 264,000; the New York medical section, from 274,694 to 616,000; the Schenectady medical section, from 162,694 to 224,000; the New Cumberland medical section, from 56,179 to 65,379; and the St. Louis Medical Depot, from 256,579 to 1,725,464. This last increase was created by the leasing of warehouses and by the purchase of the St. Louis Mart Building, a multi-story structure which contained storage space of approximately 1,200,000 square feet.⁷⁶ Aside from expanding the Medical Department's original branch depot, this purchase signalized a major change in policy: In the future, the main distribution depot of the Medical Department would be in St. Louis, and the area served by that depot was accordingly expanded.

In addition, a branch depot was established at Savannah, with 411,872 square feet, and another at Toledo with 854,247 square feet. Finally, new medical sections were opened at Chicago, Ogden, and Seattle, having a total space of 728,273 square feet.⁷⁷ In a single year, therefore, and while the United States was nominally at peace, the storage space of the Medical Department was increased from 1,203,387 to 5,690,028 square feet—an expansion of almost five-fold. In the meantime, the number of civilian employees mounted rapidly. In June 1940, a total of 900 had discharged the functions of purchase, storage, and distribution. By June 1941, this number had increased to 2,606, and by December of that year it stood at approximately 4,000.⁷⁸

The heavy load which the expanding Army placed upon the Medical Department's storage and distribution facilities caused other changes, in addition to the increase in depot space and operating personnel. The methods and procedures which had been adequate for the modest work of the depots during prior years could not cope with the vastly augmented tasks imposed by the rearmament program. One of the first important changes affected the accounting and bookkeeping procedures. The maintenance of records and the printing of shipping documents had been accomplished in the depots by the use of Elliott Fisher machines. So long as the number of daily transactions was low and back orders were a negligible factor, these machines were quite adequate; but during the period 1939-1941, the great increase in the number of transactions brought a corresponding delay in posting and in printing shipping documents. Consequently, the filling of requisitions could not be promptly accomplished, and stock records of the depots were not kept up to date. Since the procurement program at this time was based upon the "depot replenishment system," the incomplete stock reports of the depots,

RESTRICTED

RESTRICTED

occasioned by outmoded methods, made it impossible to estimate realistic purchase requirements. A drastic change in accounting procedures was needed. In 1941 the Medical Department was instructed by the Office of the Under Secretary of War to install Electrical Accounting Machine methods in stock control, both in the Office of The Surgeon General and in the depots. At that time none of the supply personnel of the Medical Department was familiar with punch card systems. Therefore, the contracting firm (the International Business Machines Corporation) undertook to furnish certain employees and to train Medical Department personnel. The original installation was made in the Office of The Surgeon General. Then an installation was made in the New York depot and later in other depots over the country. The development and smooth operation of the new stock accounting system required much longer than originally anticipated; not until 1943 did the system produce the satisfactory results which had been expected. From that year until the end of the war, however, the new methods made important contributions to the efficient transaction of a large volume of business.⁷⁹

Many other important improvements in storage and distribution were developed after Pearl Harbor and, therefore, will be discussed in subsequent chapters. It should be noted, however, that the embryonic beginnings of these improvements are found in the 1939-1941 period. The use of materials-handling equipment, which so greatly added to the speed and economy of storage operations, originated prior to Pearl Harbor. Improvements in the collection and packing of stock, to fill requisitions, were necessary as soon as the work load increased; and by the use of the assembly-line system, these tasks were better performed. Inventories were taken more frequently and in a manner which interfered less with current operations.

These and other improvements began during the present period. It must be acknowledged, however, that they did not solve the vast job of distribution that confronted the Medical Department during 1941. As the Army expanded through voluntary enlistments and the action of Selective Service, training camps multiplied throughout the country; and each camp had its station hospital and its group of regimental dispensaries. In addition, there was an increasing number of medical troops being trained for service with tactical units. These installations and troop units needed great quantities of medical supplies, and the medical supply officer of each post looked to his distribution depot to supply the need. In July 1940, there were 110 station and general hospitals, having a total of 22,000 beds. By July 1941, the number of hospitals had grown to 180, and the total beds had increased to 80,000.⁸⁰ This increase in hospital bed capacity necessitated the shipment of large numbers of hospital assemblies and great quantities of maintenance supplies to posts, camps, and stations. During this early period, stocks were not adequate to supply the large number of hospitals then being constructed. Both the procurement lag and the inadequacy of

RESTRICTED

~~RESTRICTED~~

the War Reserve rendered shortages inevitable. Although the depots made emergency purchases from local sources, many assemblies were shipped to the hospitals only fifty to sixty percent complete.⁸¹ Old 1918 hospital assemblies were torn down and re-assembled to meet modern needs,⁸² but shortages of medical supplies in the hospitals continued. Fortunately, no major epidemics occurred in the training camps. It is improbable, therefore, that the scarcity of medical supplies seriously hampered the professional work of doctors and surgeons.

Summary

When the two years covered by this chapter are viewed in their proper perspective, the following points stand out with a degree of clarity that may have been obscured in the enumeration of many particulars:

1. In company with the American people and many of their political leaders, the Finance and Supply Division of the Medical Department never knew the goal towards which its mobilization was leading. The country appeared to be gathering its energies for a war, but not until the attack upon Pearl Harbor was war certain.
2. Industrial mobilization plans, carefully prepared before 1939, were never put into effect, although by the end of 1941 great strides toward complete mobilization had been made.
3. During much of this period, the Finance and Supply Division clung to peace-time methods of computing requirements, purchasing, stock control, and distribution. These methods rapidly became inadequate as the supply mobilization gathered momentum.
4. Industry, like the Army, was unprepared for the load which the march of events was throwing upon it. Government agencies for the stimulation and control of production were slowly emerging and changing form, but they functioned too late to give order and direction during much of this period.
5. The foregoing circumstances resulted in shortages and in the maldistribution of many essential items. But these results were not peculiar to the Medical Department of the Army. Other technical services and the Air Forces were faced with similar problems.
6. Equipping and supplying hospitals in the zone of the interior was the great and pressing need during this period. Procurement planning had not anticipated this need, for the planners worked upon the assumption that the outbreak of war would come suddenly and without warning. The efforts of procurement planning, therefore, were devoted to supplying tactical organizations, which, it was thought, would begin military operations soon after M-day. Yet,

~~RESTRICTED~~

RESTRICTED

as the events began to disclose themselves, it was seen that the need for tactical equipment (except for training) was slight when compared with the need for some of the interior hospital equipment, since very few troops had been sent overseas by the end of 1941. At first glance, this exact reversal of anticipated needs appears to be a queer twist of fate. Upon second glance, however, the explanation is detected upon a more mundane level. Before an army can be thrown into combat, it must be recruited and trained; and during the course of this training, sickness and accidents make it necessary to operate a large number of hospitals. Procurement plans did not pay sufficient attention to this elementary fact.

RESTRICTED

~~RESTRICTED~~

NOTES FOR CHAPTER II

1

In March 1942, the name was changed to "Finance and Supply Service," but this alteration did not affect the duties or internal structure of the office.

2

Functional Procurement Chart, Medical Department, May 16, 1941 (Historical Division, SGO, 381.-1).

3

Chart of Finance and Supply Division, October 15, 1941 (Historical Division, SGO, 381.-1).

4

Report of The Surgeon General, 1940, pp. 161-162.

5

Ibid., 1941, p. 130.

6

Lieutenant Colonel R. E. Murrell, "Memorandum for the Executive Officer," August 31, 1939 (Record Room, SGO, 381-1).

7

Report of The Surgeon General, 1941, p. 130.

8

Ibid., 1940, p. 161; 1941, p. 130.

9

Ibid., 1940, p. 162.

10

Colonel H. K. Rutherford to The Surgeon General, October 30, 1939 (Record Room, SGO, 381.-1).

11

Edward J. Sovatkin, of the J. Sklar Manufacturing Company, to Lieutenant Colonel A. W. Dawson, November 6, 1939 (Historical Division, SGO, 381.-1).

12

Major Clifford V. Morgan, "Educational Orders" (Paragraph 12, Section III, Problem 17A, Army Industrial College), February 20, 1940; Captain John B. Franks to The Surgeon General, April 21, 1939 (Historical Division, SGO, 381.-1).

~~RESTRICTED~~

RESTRICTED

13

Lieutenant Colonel C. F. Shook to Lieutenant Colonel R. D. Harden, November 2, 1939 (Historical Division, SGO, 381.-1).

14

Lieutenant Colonel R. E. Murrell, "Memorandum for the Executive Officer," August 31, 1939, pp. 2-3 (Record Room, SGO, 381.-1).

15

Report of The Surgeon General, 1940, p. 162; 1941, p. 131.

16

Ibid., 1940, p. 162; Lieutenant Colonel C. F. Shook to Colonel Charles Hines, February 20, 1940 (Record Room, SGO, 381.-1).

17

Colonel James E. Baylis, Executive Officer, SGO, to Major A. R. Ginsburgh, Office of the Assistant Secretary of War, May 15, 1940 (Record Room, SGO, 381.-1).

18

Major General James C. Magee to The Adjutant General, May 10, 1940 (Record Room, SGO, 381.-1).

19

Major General James C. Magee "Statement of Medical Department Activities for the Sub-Committee of the Committee on Appropriations, Seventy-Seventh Congress," p. 13.

20

Executive Order No. 8244, dated September 8, 1939.

21

Major M. E. Griffin to the Assistant Secretary of War, January 16, 1940 (Record Room, SGO, 400.12-1).

22

Lieutenant Colonel F. C. Tyng to the Assistant Secretary of War, July 19, 1940 (Record Room, SGO, 400.12-1).

23

Lieutenant Colonel F. C. Tyng to the Assistant Secretary of War, October 22, 1940 (Record Room, SGO, 400.12-1). In the summer of 1941, when the New York office became overburdened, a portion of its work was transferred to St. Louis, but this change was not permanent.

RESTRICTED

~~RESTRICTED~~

24

Major Arthur Hornbacher, "Administrative Organization of Purchasing Division, Medical Section, New York General Depot," pp. 1-2 (Historical Division, SGO, 400.12-1).

25

Medical Department bids were open to three classes: (1) Manufacturers of the items bid upon, (2) regular dealers who carried a stock of merchandise and who had a shop or warehouse from which sales were made, and (3) bona fide manufacturers' agents who were regularly employed on salary or commission.

26

Form letter filed in Record Room, SGO, 400.14-1, under date of April 29, 1940.

27

Lieutenant Colonel F. C. Tyng to Mr. H. C. Timberlake, December 14, 1940 (Record Room, SGO, 400.14-1).

28

Colonel John W. Mechan to Senator Francis Maloney, September 26, 1941 (Record Room, SGO, 381.-1).

29

Major W. E. Griffin to twelve district offices of the Defense Contract Service, Office of Production Management, October 20, 1941 (Record Room, SGO, 381.-1).

30

Major C. H. Simpson, Jr., to The Surgeon General, February 3, 1941 (Record Room, SGO, 381.-1).

31

Lieutenant Colonel C. F. Shook to Colonel F. C. Tyng, March 1, 1941 (Record Room, SGO, 400.12-1).

32

Mrs Clara Wilson, "Procurement Planning, 1939 to December 1941," pp. 19-20 (Historical Division, SGO, 381.-1).

33

Ibid., p. 19; Lieutenant Colonel F. C. Tyng to the Assistant Secretary of War, November 28, 1940 (Record Room, SGO, 400.12-1).

~~RESTRICTED~~

RESTRICTED

34

Lieutenant Colonel John J. Pelosi to Lieutenant Richard E. Yates, December 7, 1944 (Historical Division, SGO, 400.12-1).

35

Colonel Paul I. Robinson to the Chief, Supply Service, August 11, 1944 (Historical Division, SGO, 400.12-1).

36

The Medical Department, for many years, had possessed the power to make open market purchases if necessary to save life or prevent suffering, but the amount of each purchase could not exceed \$500.

37

Colonel John W. N. Schulz to The Surgeon General, July 2, 1940 (Record Room, SGO, 400.12-1).

38

Major Arthur Hornbacher, "Negotiations--Surgical Dressings" (Historical Division, SGO, 400.12-1).

39

Major Arthur Hornbacher, "Purchasing Methods--Contracts" (Historical Division, SGO, 400.12-1).

40

Colonel Albert G. Love to the Assistant Secretary of War, September 5, 1939 (Record Room, SGO, 400.12-1).

41

Lieutenant Colonel F. C. Tyng to the Assistant Secretary of War, July 19, 1940 (Record Room, SGO, 400.12-1).

It is unnecessary to elaborate the point here, but the results of procurement planning were not "tested out." Rather, to a large extent they were either rejected or ignored. Nearly a year after this letter was written, many facilities in the mid-west asked why the Medical Department did not grant orders to the holders of schedules of production. (Procurement Planning Officer, Chicago District, to The Surgeon General May 13, 1941 [Record Room, SGO, 381.-1-].)

42

Lieutenant Colonel F. C. Tyng to the Assistant Secretary of War, February 13, 1941 (Record Room, SGO, 381.-1).

RESTRICTED



~~RESTRICTED~~

43

Lieutenant Colonel R. D. Harden to the Assistant Secretary of War, September 26, 1939 (Record Room, SGO, 400.12-1).

44

Colonel J. B. Huggins to The Surgeon General, September 27, 1939 (Record Room, SGO, 400.12-1, New York Port of Embarkation).

45

Lieutenant Colonel F. C. Tyng to the Commanding Officer, St. Louis Medical Depot, May 31, 1941 (Record Room, SGO, 400.12-1).

46

Lieutenant Colonel C. F. Shook to the Army and Navy Munitions Board, August 23, 1940 (Record Room, SGO, 381.-1).

47

"Extracts from Colonel Shook's Speech," pp. 21-22 (Historical Division, SGO, 381.-1 [1941]).

48

Edward J. Sovatkin to Lieutenant Colonel A. W. Dawson, November 6, 1939 (Historical Division, SGO, 381.-1). In the summer of 1940, the American Surgical Trade Association circularized dealers in surgical instruments, requesting that they send a list of their surplus stocks to The Surgeon General, so that the Medical Department could know if dealers' shelves could be relied upon in an emergency. Five dealers acknowledged that they had a small surplus, but 61 declared they were unable to satisfy their regular customers. (Correspondence between surgical instrument dealers and Lieutenant Colonel C. F. Shook, June-July, 1940 [Record Room, SGO, 442.-8].) Civilian hospitals moreover, were not over-stocked, according to the secretary of the American Hospital Association. The Army could expect no aid, therefore, from that source. (Mr. G. W. Wallerich to Lieutenant Colonel C. F. Shook, December 24, 1940 [Record Room, SGO, 442.-8].)

49

Report of The Surgeon General, 1938, p. 156; 1939, p. 165. In 1939 the "Metcalfe Plan" was adopted, which provided that all station and general hospitals would be furnished a basic set of surgical instruments, to be augmented by supplemental sets for abdominal, chest, eye, skull, and other specialized types of surgery. A more economical use of basic instruments was promised by this plan.

~~RESTRICTED~~

RESTRICTED

50 Lieutenant Colonel C. F. Shook to Lieutenant Colonel R. D. Harden, November 2, 1939 (Historical Division, SGO, 381.-1).

51 "Extracts from Colonel Shook's Speech," pp. 15-16 (Historical Division, SGO, 381.-1 [1941]).

52 Lieutenant Colonel F. C. Tyng to the Army Contract Distribution Division, Office of the Under Secretary of War, November 5, 1941 (Record Room, SGO, 381.-1). The size of these contracts is indicated by the fact that Oenida, Ltd., received an order for 32,150 forceps, valued at \$26,997.50.

53 Lieutenant Colonel C. F. Shook to Captain H. T. Marshall, June 10, 1941 (Record Room, SGO, 381.-1).

54 Lieutenant Colonel A. W. Dawson to The Surgeon General, February 19, 1941 (Record Room, SGO, 381.-1).

55 Major General James C. Magee to Dr. Olin West, Secretary, American Medical Association, June 30, 1941 (Record Room, SGO, 381.-1).

56 Lieutenant Colonel C. F. Shook to the Labor Section, Office of the Assistant Secretary of War, March 5, 1941 (Record Room, SGO, 381.-1).

57 Major S. B. Hays to the Commanding Officers of all medical depots, April 25, 1941 (Record Room, SGO, 381.-1).

58 Lieutenant Colonel C. F. Shook to the Labor Section, Army and Navy Munitions Board, March 4, 1941 (Record Room, SGO, 381.-1).

59 Lieutenant Colonel C. F. Shook to the Labor Section, Army and Navy Munitions Board, April 5, 1941; Edward J. Sovatkin to Lieutenant Colonel C. F. Shook, May 9, 1941 (Record Room, SGO, 381.-1).

RESTRICTED

~~RESTRICTED~~

60

Lieutenant Colonel C. F. Shook to the Production Branch, Office of the Under Secretary of War, August 16, 1941 (Record Room, SGO, 381.-1).

61

Mr. James Picker to Lieutenant Colonel C. F. Shook, June 9, 1941 (Record Room, SGO, 381.-1).

62

Lieutenant Colonel C. F. Shook to Lieutenant Colonel F. C. Tyng, March 1, 1941 (Record Room, SGO, 400.12-1).

63

Other aid which the Medical Department extended to its contractors included the obtaining of amortization certificates, which enabled the contractors to write off as a business expense the investments made in plant expansion. In addition, procurement officers inspected factories and, in cooperation with the FBI, made recommendations in regard to protection from fire, espionage, and sabotage. (Major Elmer A. Shea to Lieutenant Colonel F. C. Tyng, October 18, 1941 [Record Room, SGO, 381.-1]).

64

Major H. E. Griffin to the Assistant Secretary of War, November 8, 1939 (Record Room, SGO, 400.137-1).

65

Lieutenant Colonel C. F. Shook to Lieutenant Colonel F. C. Tyng, March 1, 1941 (Record Room, SGO, 400.12-1).

66

Lieutenant Colonel F. C. Tyng to Mr. Julius H. Amberg, June 27, 1941 (Record Room, SGO, 400.12-1).

67

Finance and Supply Service, Annual Report, fiscal year 1942, p. 9 (Historical Division, SGO, 024.6-10); Lieutenant Colonel R. D. Hardon to the Assistant Secretary of War, July 14, 1939; Lieutenant Colonel F. C. Tyng to the Assistant Secretary of War, July 29, 1940 (Record Room, SGO, 400.12-1).

68

"Report of Procurement Operations, July 1939 to December 31, 1941," Medical Section, New York General Depot (Historical Division, SGO, 400.12-1).

69

Lieutenant Colonel F. C. Tyng to the Assistant Secretary of War, November 28, 1940 (Record Room, SGO, 400.12-1).

~~RESTRICTED~~

RESTRICTED

70

Colonel Paul I. Robinson to the Chief, Supply Service, August 11, 1944 (Historical Division, SGO, 400.12-1).

71

See Appendix, Exhibit 4.

72

See "History of the St. Louis Medical Depot, 1936 thru 1939," p. 4 (Historical Division, SGO, 319.-1).

73

Ibid., p. 5

74

For example, medical supplies and equipment, procured in the New York area, were shipped to a Texas port by boat and were then forwarded by rail to the San Antonio depot. This was not a fast method of shipment, but it was cheap.

75

"The Depot Facilities Program of the Medical Department," p. 1 (Historical Division, SGO, 400.24-1).

76

This building was purchased in June, 1941 from the St. Louis Terminal Association for \$2,600,000. See St. Louis Commerce, October 8, 1941, p. 3.

77

Major Paul I. Robinson to Colonel Alberg G. Love, December 25, 1942 (Historical Division, SGO, 400.24-1).

78

Major D. A. Peters to Colonel Albert G. Love, November 23, 1942 (Historical Division, SGO, 400.24-1).

79

See "History of the St. Louis Medical Depot, 1937 thru 7 December 1941," pp. 38-40 (Historical Division, SGO, 319.-1); material supplied informally by Colonel S. B. Hays, Chief, Supply Service (January, 1946).

80

Major General James C. Magee, "Activities of the Medical Department in the Augmentation of the Army," The Army Medical Bulletin, April, 1941, p. 9.

RESTRICTED

RESTRICTED

81

Lieutenant Colonel R. L. Black to the Historical Division, SGO,
November 16, 1944 (Historical Division, SGO, 400.24-1).

82

"History and Procedure Manual of the Toledo Medical Depot, 1941-
1945," p. 1 (Historical Division, SGO, 400.24-1).

RESTRICTED

RESTRICTED

CHAPTER III

ADMINISTRATIVE ORGANIZATION OF SUPPLY FUNCTIONS.

1941 - 1945

Organization in the Office of The Surgeon General

When the United States formally entered the war on December 7, 1941, the Finance and Supply Division of the Office of The Surgeon General consisted of 16 officers and 201 civilian employees. This Division, which supervised all fiscal and supply activities of the Medical Department, was divided into three functional branches: Finance, Supply, and Civilian Personnel. In this monograph it is unnecessary to deal with the Finance Branch, except to say that the Requirements Sub-Division fell under its jurisdiction. This apparent anomaly was justified on the grounds that the budget-making function of the Finance Branch depended partly upon the Requirements Sub-Division for estimates of funds needed. Later, it was considered wiser to acknowledge that the computation of requirements was, in reality, an integral part of the procurement function; and, accordingly, it was placed in that part of the administrative structure.

The Supply Branch was divided into the two following Sub-Divisions: Production Planning and Purchasing, Storage and Issue.¹ It will be observed that the three basic functions of supply were placed in a single unit. As the rearmament program advanced, however, it became inevitable that supply activities would outgrow this simple structure. The problems of procurement, which became increasingly acute every day, were different from those encountered in storage; and the difficulties involved in the distribution of medical supplies, although closely connected with storage, were related only indirectly to procurement. The next organizational change, therefore, was a logical one. In March, 1942, the Finance and Supply Service² was divided into the following divisions: Finance, Procurement, Storage and Issue, Production Control, and Miscellaneous.³ The duties performed in each division are indicated by the branches into which they were divided:

FINANCE DIVISION

Fiscal Branch
Requirements Branch
Resources Branch
Claims Branch

RESTRICTED

RESTRICTED

PROCUREMENT DIVISION

Purchase Branch
Stock Control Branch
Allotments Branch
Defense Aid Branch

STORAGE AND ISSUE DIVISION

Requisitions Branch
Field Units Branch
Fixed Hospitals Branch
Storage Control Branch

PRODUCTION CONTROL DIVISION

Production Planning Branch
Priorities Branch
Industry Liaison Branch
Plant Protection Branch

MISCELLANEOUS DIVISION

Administration Branch
Machine Records Branch
Statistical Branch
Standards Branch

This organization, which effected important changes and brought the administrative structure more in line with actual functions, did not long continue. It had scarcely gone into effect before an exhaustive study was initiated, in connection with Headquarters, SOS, to divide the fiscal and supply functions of the Office of The Surgeon General, and to consolidate all financial activities in a separate Fiscal Division. This plan conformed to the organization of Headquarters, SOS, and was adopted, effective July 1, 1942.⁴ In addition to the elimination of fiscal duties, other important changes were made in the structure of the newly-created Supply Service, as indicated in the following chart:

SUPPLY SERVICE

Production Planning Division	Requirements Division	Purchases Division	Distribution Division	International Division
------------------------------	-----------------------	--------------------	-----------------------	------------------------

This reorganization, it will be seen, deleted the Miscellaneous Division and added an International Division and a Requirements Division, the duties of the latter having formerly been performed in the Finance

RESTRICTED

RESTRICTED

Branch of the old Finance and Supply Division. The Production Control Division, moreover, was changed to the Production Planning Division. This was more than the mere alteration of a name, for the new division was divorced from current procurement and its former functions, in that regard, were transferred to the Purchases Division.⁵

In the meantime, the number of officers and civilians assigned to the Supply Service increased at a rapid rate. It will be recalled that 16 officers and 201 civilians were on duty in the Finance and Supply Division when the United States entered the war. Nine months later--September 1942--a total of 41 officers and 431 civilians were assigned to the Supply Service.⁶ By March 1, 1943, the number of officers had increased to 94 and civilian employees to 591.⁷

This new organization established in the summer of 1942 continued in effect until March 1943, when the Supply Service once more was subjected to a thorough reorganization. As a result of this alteration, the Supply Service was organized into two separate branches (Supply Personnel and Office Management) and seven divisions, as follows: Requirements, International, Resources, Procurement, Price Analysis and Renegotiation, Specialties, and Distribution.⁸ Some of these divisions were new and require, at this point, a few words of explanation.

The Resources Division devoted its attention to alleviating the raw material shortage which, during this period, was hampering the production of medical supplies and equipment. To accomplish this purpose, it was divided into four branches: Program Analysis, Materials Requirements, Priorities and Allocation, and Conservation.

The Price Analysis and Renegotiation Division was established to analyze contract prices submitted by manufacturers and to carry out the terms of the renegotiation statutes which had been enacted by Congress in 1942 and 1943. The division was divided into two branches: Renegotiation and Price Analysis.

The Specialties Division, which included an Optical Branch, Laundry Branch, and X-Ray Service Branch, was not an operating division. Rather, its function was to study the peculiar problems encountered in the procurement and distribution of certain specialized items and to make this information available to the other divisions. It had administrative and coordinating functions almost entirely.

This reorganization had been recommended by Mr. Edward Reynolds,⁹ Special Assistant to The Surgeon General, who had made a close study of the organization and operation of the Supply Service. When Major General Norman T. Kirk became The Surgeon General in June 1943, Colonel F. C. Tyng, Chief of the Supply Service, was relieved and Mr. Reynolds became Acting Chief. In April 1944, he was commissioned a colonel, Medical Administrative Corps,¹⁰ and in May 1944, was appointed Chief

RESTRICTED

~~RESTRICTED~~

of the Supply Service. Shortly after his appointment as Acting Chief, Mr. Reynolds again reorganized the Supply Service. The separate branches were eliminated, and the seven divisions were reduced to five, as follows: Supply Planning and Specialties, International, Renegotiation, Procurement, and Distribution and Requirements. Thus were eliminated the Resources and Requirements Divisions, while the functions of the latter were merged with those of distribution.¹¹ This trend towards simplification was carried a step further in September 1943, when the Supply Planning and Specialties Division was abolished; but in November 1943, it was reinstated as the Supply Planning Division with expanded functions. In addition to its administrative and coordinating duties in regard to the procurement of optical equipment and supplies, this division had the responsibility of preparing and distributing the Medical Department Supply Catalog and Equipment Lists and with aiding in the development of new items.¹²

This last reorganization, however, is marked by a far more important change and by the beginning of a trend which continued until the end of the war. The Procurement Division was renamed the Purchase Division, and was transferred to the Army Medical Purchasing Office, successor to the New York Procurement District. A Liaison Branch of the Purchase Division was established in the Supply Service in Washington, which maintained close contacts with the Army Medical Purchasing Office and independently performed certain functions related to procurement. The movement of the Purchase Division to New York reduced the number of officers assigned to the Supply Service from 94 to 75. At the same time, the Reports and Records Branch was set up as a separate unit to compile the many reports required by the staff divisions of Headquarters, ASF, and to keep the Chief of the Supply Service constantly informed of the progress made in the procurement and distribution programs.¹³

The largest and least cohesive part of the Supply Service, at this date, was the Distribution and Requirements Division. Staffed by 33 officers, this division was composed of five branches: Storage, Requirements, Issue, Maintenance, and Inventory Control, the latter being attached to the Army Medical Purchasing Office in New York. When it is considered that this division had important duties in the computation of purchase requirements, the control of stock levels, the operation of depots, the repair of medical equipment, and the distribution of medical supplies, it is apparent that its efforts were spread over a large area and included many parts of the entire supply program. The largest task which yet remained for administrative reorganization was to break down this unwieldy division and to assign its duties to separate divisions on a functional basis.

A slight reorganization in March 1944, reduced the number of divisions to four, by eliminating the Supply Planning Division; and increased the separate branches to three, by the addition of the

~~RESTRICTED~~

RESTRICTED

Materiel Demobilization Unit and the Catalog Branch. These new offices assumed some of the duties of the abolished Supply Planning Division, and the remainder were lodged in the Liaison Branch, Purchase Division. A much more thorough reorganization was effected in June 1944, when the Distribution and Requirements Division was abolished. In its place were established the Stock Control Division, Issue Division, and Storage and Maintenance Division. The Renegotiation Division was transferred to the Army Medical Purchasing Office, and a Liaison Unit of that division was established in Washington. The Inventory Control Branch, a part of the Stock Control Division, remained in New York. At this time, also, the offices of the Deputy Chief for Supply Control and the Deputy Chief for Storage Operations were established as consulting agencies for the Chief, Supply Service, and were staffed by qualified civilians.¹⁴

As the war neared its end, the movement of Supply Service units to New York continued. In November 1944, the Stock Control Division was enlarged and transferred to the Army Medical Purchasing Office, leaving only the Requirements Branch in Washington; and in July 1945, the Requirements Branch was moved to New York. In the meantime (March 1945) the Catalog Branch, was transferred to New York. Shortly before the German surrender in May 1945, plans were made to move other parts of the Supply Service to the Army Medical Purchasing Office, but these plans were abandoned when it became apparent that the procurement and distribution programs would soon be sharply curtailed.

Organization of the Procurement Office

When the United States entered the war, the actual purchase of medical supplies and equipment was divided between the Medical Section, New York General Depot, and the St. Louis Depot.¹⁵ The latter had purchase responsibility for the following classes of medical supplies:

- Class 1 - Drugs, Chemicals, and Stains (except biologicals)
- Class 6 - X-Ray Equipment and Supplies
- Class 7 - Furniture, Physiotherapy Equipment, Mess Equipment and Supplies
- Class 8 - Veterinary Equipment and Supplies
- Class 9 - Field Equipment and Supplies

The Medical Section, New York General Depot, purchased the remainder of medical items, which included surgical dressings, surgical instruments, laboratory equipment, and dental supplies and equipment.

Early in 1942, the New York Medical Depot was established as the successor to the Medical Section, New York General Depot. The Purchasing and Contracting Section of the new depot occupied 9,000 square feet in the Kenyon Building, Brooklyn, New York, and was staffed by 10

RESTRICTED

RESTRICTED

officers and 97 civilians. In August 1942, the New York Medical Depot was moved to Binghamton, New York, but the Purchasing and Contracting Section was retained in the city and became the nucleus of the newly-activated New York Medical Department Procurement District, which found quarters, first, in the Printers Craft Building on Eighth Avenue and, in January 1943, at 50-52 Broadway. This purchasing office was divided into four Buying Sections, a Conservation and Production Control Section, and an Operations Section, which was concerned with administrative matters.¹⁶ Each of these Buying Sections (which later were called Purchasing Branches) was headed by a purchasing and contracting officer, and each section procured items in a single commodity group. It was possible, therefore, for procurement officers to specialize on a particular class of items and thus to become familiar with the plant capacity of contractors, their efficiency in fulfilling contracts, and the many problems involved in the production of certain items.

As procurement operations expanded, personnel steadily increased. In December 1942, the New York office had 58 officers and 338 civilian employees, and by June 1943 officers had increased to 74 and civilian employees to 413.¹⁷

The St. Louis Medical Department Procurement District was established in August 1942, and was organized in a manner similar to the New York office. Originally there were three Purchasing Branches, as follows:

- No. 1 - Drugs and Chemicals
- No. 2 - X-Ray and Physiotherapy Equipment
- No. 3 - Miscellaneous Equipment and Supplies

To obtain greater clerical efficiency, Branches 2 and 3 were consolidated in April 1943, and the new unit was designated as the Hospital Equipment Branch.¹⁸ Other departments were also established as the procurement load increased, which performed functions involved in production control, inspection, public relations, renegotiation, and office administration. During the calendar year 1943, personnel increased rapidly. The number of officers rose from 12 to 63, and the number of civilian employees from 161 to 241.¹⁹

These two purchasing offices, whose administrative structure has been sketched above, procured nearly all the medical supplies used by the Army during the war. First as depots and later as procurement districts, New York and St. Louis contracted for practically all of the Medical Department's purchases during the fiscal years 1942 and 1943; and it was during this period (July 1, 1941 - June 30, 1943) that the heaviest purchases of the entire war were made.²⁰ In spite of these accomplishments, however, there was the belief that Medical Department procurement should be consolidated in one office. Such a

RESTRICTED

RESTRICTED

consolidation would effect numerous clerical and administrative economies; and, more important, it would make possible a better control and integration of procurement operations. Nearly all the manufacturing plants from which the Medical Department obtained supplies were located in a narrow area lying north of the Ohio river and extending from St. Louis to Boston, and a great majority of these factories were within 300 miles of New York City.²¹ With such a concentration of manufacturing, it is apparent that a single procurement office could perform all the purchasing operations and that New York City would be the most satisfactory site for the office. Yet in June 1942, a notice was issued by the Office of The Surgeon General (at the insistence of Headquarters, SOS), announcing that the Purchasing and Contracting Office of the New York Medical Depot would be closed and its functions transferred to the St. Louis Medical Depot. This notice demoralized civilian employees in New York, most of whom had homes in that city and preferred to remain there. The office routine was considerably deranged by the dissatisfaction of the employees, their requests for releases, and their constant job-hunting. It was during this period that purchase authorizations were sent to New York, requiring the procurement by September 15, 1942, of supplies valued at \$49,000,000. Late in August 1942, it became known that the plan to consolidate procurement in St. Louis had been abandoned, and the employees in New York once more settled down to their tasks.²²

Until late in the summer of 1943, there were no further developments towards a consolidation of procurement offices. But in September 1943, all Medical Department procurement was consolidated in New York. The St. Louis district was abolished, and its duties were merged with those of the New York office, which was designated as the Army Medical Purchasing Office. In the words of the ASF Circular,²³ which activated the new unit, the Office was "responsible for the actual procurement of medical supplies, including production control, issuance of priorities, survey of facilities, and inspection of supplies." At this same time, branches were established in Chicago and St. Louis, the main duties of which were to aid contractors in procuring raw materials, component parts, and labor.

It was at this point that the Purchase Division of the Supply Service was transferred to New York, where it became an integral part of the Army Medical Purchasing Office, and was organized into five buying branches, as follows:

- No. 1 - Biologicals
- No. 2 - Surgical and Dental Instruments
- No. 3 - Hospital, Field, and Laboratory Supplies and Equipment
- No. 4 - Surgical Dressings and Textiles
- No. 5 - Drugs and Chemicals

RESTRICTED

RESTRICTED

In addition to the Purchase Division of the Army Medical Purchasing Office, other divisions and branches were added to perform the many legal, administrative, and technical functions of a large procurement center. In September 1943, for example, a Termination Branch was established to solve the complicated problems arising from terminated contracts. Renegotiations, price analysis, inventory control and other functions caused the purchasing office to grow in administrative structure and in personnel. By November 1944, it occupied seven floors of 52 Broadway and two floors of 50 Broadway (a total of 114,500 square feet) and had a staff of 182 officers and 574 civilian employees. At that time the office consisted of the following:

Staff
Control Office
Legal Office
Purchase Division
Production Division
Administrative Division

The "Staff" consisted of four units directly under the Commanding Officer: Inventory Control, Demobilization Planning, Public Relations, and Instrument Classification. The latter was primarily engaged in inspecting depot stocks of surgical instruments and with classifying them according to quality.

The Purchase Division included three Buying Branches, an Inspection Branch, and a Terminations and Price Analysis Branch.

The Production Division consisted of a Production Service Branch, Facilities Branch, Specification Branch, and Laboratory Branch.²⁴

As indicated earlier in this chapter, a part of the Army Medical Purchasing Office's growth arose from the transfer of offices from Washington to New York. In this way, New York gained the Stock Control Division, Renegotiation Division, and Catalog Branch. The growing importance of the purchasing office was shown in other ways. The Chief of the Supply Service and a number of his staff members, toward the end of the war, virtually commuted between Washington and New York, sometimes spending two or three days a week in the latter city. In many respects, it was the center of the Supply Service. Few important decisions could be made in the Washington office, regarding either procurement or distribution, without consulting the New York office, for the purchasing office and its International Business Machines produced information on many important phases of supply activity.

RESTRICTED

RESTRICTED

Notes for Chapter III.

¹Licutenant Colonel Paul I. Robinson, "Major Changes in Organizational Structure, Finance and Supply Division, June 30, 1940 to December 7, 1941" (Historical Division, SGO, 319.1-2).

²Apparently it was this reorganization which changed the title from "Finance and Supply Division" to "Finance and Supply Service."

³Chart of Finance and Supply Service, approved March 26, 1942; Memorandum from the Historical Division, SGO, to the Control Division, SOS, August 13, 1942, p. 28 (Historical Division, SGO, 319.1-2).

⁴Ibid.

⁵See Organization Chart, Office of The Surgeon General, approved August 24, 1942 (Historical Division, 319.1-2).

⁶Organization Chart, Supply Service, approved September 11, 1942 (Historical Division, SGO, 319.1-2).

⁷Supply Service Memorandum No. 1, dated March 1, 1943.

⁸See Appendix, Exhibit 5, for organization charts.

⁹Formerly the President of the Columbia Gas and Electric Corporation, New York City.

¹⁰In July 1945, Colonel Reynolds was promoted to Brigadier General and thus became the first chief of medical supply to have the rank of a general officer.

¹¹Supply Service Memorandum No. 1, dated June 16, 1943.

¹²See Supply Service Memorandum No. 1, dated November 29, 1943.

¹³Ibid.

¹⁴Office of The Surgeon General, Manual of Organization & Standard Practices, organization chart 3.09, dated June 24, 1944.

¹⁵Prior to the summer of 1941, however, practically all (90 percent) of the supplies had been purchased by the New York office. When purchase authorizations piled up shortly after the passage of the Lend Lease Act, responsibility for the purchase of additional classes of items was transferred to St. Louis.

RESTRICTED

~~RESTRICTED~~

¹⁶ Annual Report of Activities, New York Medical Department Procurement District, 1942, pp. 1-2 (Historical Division, SGO, 024.-6).

¹⁷ Annual Report of the Supply Service, SGO, 1943, pp. 12-13 (Historical Division, SGO, 024.6-10).

¹⁸ Army Medical Purchasing Office, Annual Report, 1943, p. 7 (Historical Division, SGO, 024.-6).

¹⁹ Annual Report of the Supply Service, SGO, 1943, pp. 12-13 (Historical Division, SGO, 024.6-10).

²⁰ The total obligations for supplies and equipment during the fiscal year 1942 were \$151,164,589; and during 1943 were \$483,977,157. The figure for 1944 is much smaller, and the obligations for 1945 do not equal those of 1943. (Major S. C. Sloat to Lieutenant Richard E. Yates, October 5, 1944 [Historical Division, SGO, 400.12-17].)

²¹ Major Arthur Hornbacher, "Discussion of St. Louis Medical Department Procurement District," Exhibits "A" and "B" (Historical Division, SGO, 400.12-1).

²² Major Arthur Hornbacher, "Administrative Organization [for Purchasing]," pp. 4-5 (Historical Division, SGO, 400.12-1).

²³ No. 79, dated September 15, 1943.

²⁴ Major Arthur Hornbacher, "Administrative Organization [for Purchasing]," pp. 10-21 (Historical Division, SGO, 400.12-1).

~~RESTRICTED~~

RESTRICTED

CHAPTER IV
THE PROCUREMENT OF MEDICAL SUPPLIES DURING
THE WAR PERIOD

Introduction

This chapter deals with that most important and troublesome aspect of medical supply--the procurement of great quantities of supplies and equipment needed during World War II. It is devoted to a broad and general survey of the procedures employed, the problems encountered, and the accomplishments made. And in the following chapter, special difficulties involved in the procurement of certain problem items will be considered.

Five days after the Japanese struck Pearl Harbor, the Chief of the Finance and Supply Division assured the Office of the Under Secretary of War that, so far as supplies were concerned, the Medical Department was ready for the conflict. "The Medical Department of the Army," he declared, "has for years been surveying industry and has secured ample production capacity for medical supplies providing raw materials are made available."¹ This assurance was extended on the assumption that the Army would not exceed four million men and that Lend Lease requirements would continue to be moderate. Events soon proved that neither of these assumptions was valid. Inductions were increased and the Army grew with such rapidity that the figure of four million, set in the old mobilization plans, soon became obsolete. In the meantime, the material aid extended to Great Britain, Russia, and China placed an additional heavy burden upon procurement. No one could tell in December 1941, nor for many months thereafter, just how great the task of procurement would be; but it soon became clear that the quantities of medical supplies to be purchased would dwarf our experiences in World War I and would far exceed all the goals envisioned by procurement planning. The plant capacity available to the Medical Department ceased to be ample, and a determined effort was made to find other manufacturing sources. Requirements figures, which had been laboriously computed during procurement planning days, soon became outmoded and were rejected. In some instances, needs so far exceeded manufacturing capacity that accurate requirements figures, if available, would have evoked only an academic interest. Speed was so essential and necessity prodded supply officers with such an urgent hand, that an atmosphere was created in which buying took precedence over all other functions.²

The administrative organization employed to perform these heavy procurement tasks has been sketched in the preceding

RESTRICTED

~~RESTRICTED~~

chapter. It may be well to repeat, however, that the actual buying was accomplished by field installations--first by purchasing and contracting officers in depots, later by separate procurement districts (New York and St. Louis), and, after September 1943, by the Army Medical Purchasing Office in New York City. During the entire period, those field installations were supervised by the Finance and Supply Division, SGO, and by its successor, the Supply Service. As in the pre-war period, the Washington office made the procurement policies, determined the quantities of each item to be purchased,³ and maintained voluminous records on the progress of procurement.

Specifications

The first task of medical supply was to determine what items were needed. This involved the drafting of specifications and purchase descriptions, which described with great particularity the items to be procured. When the United States entered the war, specifications for all the standard Medical Department items (approximately 4,500) had been drafted through the coordinated efforts of the operating and supply divisions of the Office of the Surgeon General. The drafting of additional specifications and purchase descriptions was required, however, when new items were added to the supply catalog and when the increasing scarcity of certain raw materials caused a change in the composition of old items. The size of this job is indicated by the fact that the number of standard items increased to 6,000 by 1942 and to 7,000 by 1943. But the number of specifications drafted was far larger than those figures indicate. During each year of the war, numerous changes in specifications were made by the Supply Service and by the procurement offices. Some changes, as already suggested, were caused by the scarcity of raw materials; others were occasioned by the demand for improved items; still others resulted from the suggestions of manufacturers, who informed supply officers that certain changes in specifications would make possible a more economical production. This necessity for frequent revision, together with the addition of new items, produced more than 6,000 specifications and purchase descriptions during 1944 and approximately 10,000 in 1945, most of which were prepared by the procurement office in New York.⁴

During the early years of the war, the Medical Department continued to issue its own catalog, in which were listed all the standard items--their number, nomenclature, and basis of issue. But in November 1943, the ASF catalog was established. In accordance with instructions,⁵ an ASF Medical Supply Catalog was prepared which included all supply catalogs, standard nomenclature lists, spare parts lists, equipment lists, and allowances of expendable supplies. Initial distribution of MED 3, the supply catalog, was made late in June 1944. It lists and,

~~RESTRICTED~~

RESTRICTED

to some extent, illustrates the many items procured by the Medical Department.

The Estimation of Purchase Requirements

After deciding what medical items were needed, the next function of supply was to determine the quantities of each item that should be procured. This was a difficult task. Indeed, no other part of the Supply Service's work was fraught with such hazards and filled with so many inherent difficulties. To compute even reasonably accurate requirement figures, supply officers should possess the fullest information about the past and present, and should be able to foresee future needs. Their success in performing this task, it is needless to say, was not complete.

When the United States entered the war, purchases were based upon the old depot replenishment system, supplemented by the additional requirements caused by the expanding Army. To be more specific, a sufficient quantity was purchased to replenish depot stocks. But, since the Army was growing and new depots were being opened, it was necessary to buy additional quantities. Tables of Equipment revealed the quantities needed to equip the new troop units then being raised. The amounts needed for initial equipment, therefore, could be readily computed. The real difficulty was encountered, however, when attempts were made to compute the quantities of supplies needed by the troop unit after it had used up or worn out its initial equipment. In other words, how much would be required for maintenance? It was in their efforts to work out a satisfactory maintenance or replacement factor for each item that supply officers found themselves treading the thin ice of prophecy. Those maintenance factors and the requirements figures drawn from them were not stable. Based upon conjecture rather than upon experience (for there had been no relevant experience), they presented grave difficulties in the procurement program and caused the "hit and miss" buying of 1940-1941 to be greatly magnified in 1942. The results of this policy presented a rather spotty record. For some items, purchase authorizations were issued for such enormous quantities that manufacturers were astounded at the size of the orders. Within a few weeks their judgment would be confirmed by cut-backs in procurement; but, very frequently, increased purchase authorizations would send total requirements to a new height. In other items a "hand to mouth" policy would be adhered to, and a small purchase authorization would be issued. This would be followed by another and still another, until as many as fifteen separate purchases of a single item had been authorized within a short period of time. One notable

RESTRICTED

~~RESTRICTED~~

result of this type of buying was to convince manufacturers that the Medical Department had only hazy and imperfect notions of its needs, a conclusion with which procurement officers would have cheerfully agreed.⁶

It was in an effort to remedy those defects, which had appeared in the procurement programs of nearly all the technical services, that the Army Supply Program was instituted in July 1942. Prepared each six months, this program was a computation of quantities required in approximately 4,500 medical items. It was intended to present an orderly buying program, based upon carefully estimated requirements. "Stop and go" buying, which had so confused procurement in the earlier period, would be eliminated; and contractors would receive an over-all picture of the Army's needs.

Undoubtedly, the Army Supply Program was a great improvement over the loose, uncoordinated efforts which preceded it. It infused into procurement an air of stability and steadiness that was reassuring. But it possessed one very important disadvantage which, within little more than a year, caused the Medical Department to abandon it as a procurement objective. Since it was prepared at widely separated intervals (every six months), it could not keep step with changing needs. Moreover, the advance period being contracted for was from one year to 18 months. Because of this long period, items on which short supply developed were not given attention until the situation became serious. Similarly, where the issue rate was not so high as the Army Supply Program anticipated, excess stocks developed which made contract terminations necessary.

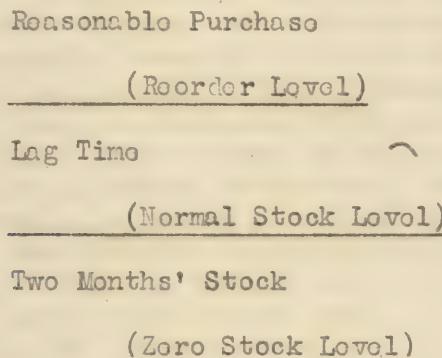
In an effort to bring purchases more nearly in line with actual stock conditions, the Delivery Needs Plan was put into effect in the latter part of 1943. A Delivery Needs report was prepared at two-month intervals by the Distribution and Requirements Division, Supply Service, based upon the same requirements figures included in the Army Supply Program. These figures were adjusted, however, by subtracting from them the current stock-on-hand and due-in-from-procurement figures which were obtained from depots. It will be observed, therefore, that this system closely approximated the Army Supply Program, except that changes in stock conditions were taken into consideration every two months. It was more successful than the Army Supply Program, but it did not reflect changes in either needs or stock conditions often enough to provide a reliable procurement program. The basic problem continued. Procurement was not being coordinated with needs as reflected in current issues.

As a solution to this problem, the system of Stock

RESTRICTED

Level Purchasing was instituted in February 1944, and continued in effect during the remainder of the war. Since this system depended upon the closest cooperation between stock control and procurement, the Inventory Control Branch was moved from Washington to New York in November 1943, and the remainder of the Stock Control Division was subsequently transferred.

Stock Level Purchasing employed the same ratios of call and the same maintenance factors used in the Army Supply Program, but the purchase requirements thus obtained were subject to very frequent review and revision. The object of the system was to maintain a pre-determined stock level in all depots, as illustrated in the following chart:



The two horizontal lines in the above chart represent successive stock levels which are attained when the following quantities of stock are added: "two months' stock", "lag time". When the "on hand plus on order position" of an item had fallen to the "reorder level", another order was placed by the procurement office; for by the time this order was filled, issues during procurement lag time had reduced the quantity of that item to "normal stock level", which represented anticipated issues for the next two months. The size of the "reasonable purchase" was determined by a conference between the buyer and stock control officers, and it depended upon conditions affecting the manufacture of the item. When raw materials and manufacturing facilities were readily available, small purchases frequently repeated would be authorized. If the manufacturing process was difficult, however, a large quantity would be authorized and its delivery would be scheduled over a longer period of time.

All items were reviewed monthly by an examination of the Consolidated Stock Report, which consisted of the semi-monthly stock reports of individual depots. In addition, specific items which were in short supply were reviewed at more frequent intervals. Thus the shortest practicable

RESTRICTED

~~RESTRICTED~~

time elapsed between the development of a need and the placing of an item in procurement. The system eliminated, also, the peak loads in purchasing activity, for a relatively small number of items was purchased monthly. Since the period contracted for was reduced to a minimum, contract terminations became less frequent.⁷

The purchasing plan described above represented a return, in a modified form, to the Depot Replenishment System. Greatly improved record keeping and the submission of more frequent reports rendered its operation smoother and its success more nearly complete. It should be noted, however, that purchase requirements under this system were based squarely upon issue experience. When that experience was inadequate, serious difficulties resulted. For example, during the first nine months of 1944 the issue of Frazer's Solution was relatively small, approximating 10,000 bottles per month. In October 1944 requisitions for this item increased so precipitately, that port shortages of considerable size began to appear. Purchases were immediately increased, so that by the end of November 132,000 bottles were under contract for immediate delivery, and an additional 250,000 were ordered for delivery during the first five months of 1945. But in the middle of December, very large requisitions from overseas increased port shortages by 650,000 bottles. Since there had been so little previous activity in this item, the Supply Service was unable to cope with such heavy demands. Neither raw materials nor manufacturing facilities were available to produce the required quantities, and it was not until February 1945 that the situation was brought under control.⁸

The Stock Level Purchasing System was satisfactory so long as there were no great and sudden fluctuations in issues. There was always the possibility, however, that unexpectedly large requisitions would clean out depot stocks to a point far below the reorder level, and that months would elapse before deliveries from contractors would replenish the supply. If a system of computing accurate requirements could have been developed, the problem would have been solved, but the available maintenance factors were too unreliable to guide procurement. As the war closed, maintenance factors based directly upon ZI and overseas issues were computed. Carefully preserved and analyzed, these should aid in the estimation of requirements during a future war.

Placing the Orders

After determining the quantity of an item needed, the next step in the procurement process was the placing of the order, either through competitive bidding or negotiation.

~~RESTRICTED~~

RESTRICTED

As in the pre-war period, these functions were performed by procurement offices in the field, which were given broad authority in the signing of contracts. In 1941, purchasing and contracting officers were authorized to approve a contract when the amount was less than \$500,000; and during the following year, the amount was increased to \$1,000,000. Contracts which exceeded those limits had to receive the approval of The Surgeon General.⁹

A Bidders' List, containing the names of actual and potential Medical Department contractors, was maintained in the procurement offices. When a purchase authorization was received, names of manufacturers and dealers who could supply the item were taken from the Bidders' List, and invitations to bid were addressed to them. This constituted the advertisements for bids which, until July 1940, had been required by Federal law. Although competitive bidding for many items continued throughout the war, the speed and other advantages of negotiated contracts caused the bulk of Medical Department buying to be accomplished in that manner. This was in obedience to orders of the War Department which directed that "the authority to place orders without advertising be utilized in all cases where that method of procurement will expedite the accomplishment of the war effort."¹⁰ In another communication The Surgeon General was informed that "Speed, not cost, is the dominant factor."¹¹ During the first quarter of 1942, negotiated purchases were used to such an extent that they totalled \$25,000,000, while contracts signed on the basis of competitive bidding amounted to less than \$1,000,000.¹²

Prior to the actual negotiation of a contract, letters of intent were frequently issued, which carried the applicable preference rating and directed that production be initiated prior to the formal signing of the legal instruments.¹³ New forms were devised in the New York procurement office, eliminating much unnecessary material and speeding the placement of orders by two to three weeks.¹⁴

There was a close coordination in the work of the various divisions of the New York procurement office. The Administration Division maintained records of purchase authorizations and contracts, which were made available to the purchasing officers at regular intervals, so that each buyer was kept informed as to the procurement status of each item for which he was responsible. The Administration Division also reviewed open contracts to assure itself that shipments were made as scheduled, and that they were received and acknowledged by the depots. It was necessary, especially during 1943, to schedule production in such a way that scarce raw materials could be made available for the items most urgently needed. This involved a great

RESTRICTED

~~RESTRICTED~~

deal of care in the making of contracts and in the stipulation of delivery dates when the items contracted for were composed of critical raw materials. Each contract was analyzed and realistic schedules were prepared to guide the contractors in establishing their production schedules.¹⁵

Prior to Pearl Harbor, the Medical Department had used only the following contract forms:

QMC Form No. 307 (Delivery Order)

QMC Form No. 308 (Purchase Order)

WD Form No. 1 (Supply Contract)¹⁶

These forms were not entirely satisfactory to the Medical Department, largely because they had been developed for technical services having a much greater volume of procurement. They prescribed policies that often proved burdensome to the making of relatively small purchases. The Medical Department, therefore, devised new contract forms, especially suitable to solve its problems, which were put into effect late in 1942.

The most important of the new instruments was War Department Contract Form No. SG 1 (Supply Contract). Used from September 1942 until the end of the war, this was for all "formal contracts" involving the procurement of medical supplies and equipment in amounts not exceeding \$1,500,000.

For long-term supply contracts, the Medical Department employed War Department Contract Form No. SG 2, which was put into effect in October 1942. This form was not widely used at first, but it soon demonstrated its value, especially in the procurement of surgical dressings and penicillin. In the contract, a price was fixed for a certain quantity which was to be delivered prior to a stated date. The balance of the quantity under contract was to be delivered as needs developed, the unit price of each delivery to be fixed by agreement between the contracting officer and the contractor. In no case, however, was the price to increase more than 20 percent.

War Department Purchase Order Form No. SG 3, was used for the procurement of supplies, repairs, and services valued at less than \$2,000, subsequently increased to \$10,000. Known as an "informal contract" because it did not require the written acceptance of the contractor, this form was useful in expediting the delivery of small purchases which were needed quickly.

~~RESTRICTED~~

RESTRICTED

For the peculiar problems involved in the processing of blood plasma, a special contract was devised by the legal officers of the Army Medical Purchasing Office. In addition to the special clauses, this contract contained all the standard provisions of the other contracts which were designed to protect the government's interest.¹⁷

In devising these contract forms and in the negotiations between buyers and contractors, the legal officers of the procurement districts and, later, of the Army Medical Purchasing Office, took a prominent part. Their services were useful in the interpretation of statutes and procurement regulations, in the establishment of routines for the scrutiny of contracts, and in the interpretation and modification of contract provisions. One of the most important tasks was to acquaint the contracting officers with the legal limitations upon their authority and with the embarrassments and complications that would ensue if mistakes were made in the obligation of public funds.¹⁸

Closely connected with the negotiation of contracts, price analysis and renegotiation were employed by the Medical Department in an effort to control prices. Late in 1943 the price analysis program began. With few exceptions, purchasing officers required contractors to include cost data on special forms when submitting bids for orders in excess of \$10,000. Most of the manufacturers were vehemently opposed to this method of doing business, and for awhile resisted all efforts of purchasing officers to obtain cost data. There were numerous telephone calls and visits from contractors, who sought advice on how to fill in the forms. Some declared that they did not know their costs. Others submitted bids without cost information. A few simply refused to bid. After a great deal of argument and persuasion, purchasing officers succeeded in convincing the contractors that the new system did not aim at the elimination of profits or the dissemination of trade secrets, that its only object was to keep profits within reasonable limits and thus avoid renegotiation. By the spring of 1944, most Medical Department manufacturers were cooperating, and price analysis was in successful operation.

As the cost data were examined by purchasing officers, proof was available that a considerable amount of overpricing existed and that excessively large prices were resulting. Only one item was analyzed in November 1943, but that analysis made possible a reduction of 12 percent in the quoted price and a saving of \$1,036. During 1944, the number of items analyzed each month varied between 17 and 115 and showed a steady upward trend. Price reductions varied between 1.6 percent and 69 percent, and totaled

RESTRICTED

\$1,657,027.30 for the year.¹⁹ During the first half of 1945, savings amounted to approximately \$1,400,000. This is scarcely more than an indication, however, of the total savings effected by price analysis. When a quoted price was reduced, through an analysis of cost figures, subsequent purchases were effected at the lowered figure. Thus the savings were cumulative and were much larger than the foregoing figures indicate. It was observed, also, that price analysis effected economies in another way. For example, when a manufacturer submitted a quotation on one occasion, he was requested to forward cost data. He complied and at the same time lowered his price. An analysis of the cost data resulted in a further reduction.²⁰ It is significant that the prices of Medical Department items declined 15.7 percent during the period July 1, 1944 to June 30, 1945.²¹

The renegotiation of contracts was another and more vigorous method of reducing the cost of medical supplies and equipment. Unlike price analysis, this was a remedy, not a preventive; it recouped excessive profits after the contract had been completed and the supplies delivered. Renegotiation was based upon the assumption that manufacturers, when producing new items or tremendously increased quantities of old items, could not foresee their costs and thus charged prices that resulted in excessive profits. But after the supplies had been manufactured and delivered, cost data were available; and then it was possible to determine the prices which should have been charged. Consequently, there was a literal renegotiation of contracts, with full information at the disposal of both the contractors and representatives of the Renegotiation Division, Supply Service. It should not be assumed, however, that hard and fast rules were applied in these proceedings and that each contractor's profits were reduced to the same percentage figure. If a contractor's costs were high and if he had made no sincere efforts to reduce them, the percentage of profit allowed was correspondingly reduced. But if he had kept down his costs, the percentage allowed was higher. Contractors who had sustained losses or had made very small profits on other government orders, might be permitted a larger profit on the contract being renegotiated. All pertinent circumstances and conditions were considered and each case was settled on its own merits. The work required a most thorough study of a contractor's business with the Medical Department, including his costs, prices, profits, promptness in making deliveries, corporate structure, etc. There appeared to be a pronounced tendency on the part of some contractors to inflate their costs, and thus reduce their percentage of profit, by including expenses which had no direct relation to the fulfillment of the contract. It was necessary, therefore, to exercise great care in determi-

RESTRICTED

ning the true costs.

The Renegotiation Division was established in July 1942, and continued in operation during the remainder of the war. During the fiscal year 1943, it initiated renegotiation proceedings on 229 Medical Department contracts, of which 82 were completed before the end of the fiscal year. These completed cases resulted in refunds amounting to approximately \$4,500,000, distributed as follows:²²

Drugs, Chemicals, Biologicals	\$700,000
X-Ray Equipment and Supplies	150,000
Sterilizer Equipment	1,000,000
Dental Equipment and Supplies	1,100,000
Surgical Instruments	925,000
Surgical Dressings	500,000
Miscellaneous	125,000
Total	\$4,500,000

During the fiscal year 1944, the number of cases increased considerably, and refunds recovered amounted to \$7,500,000, or 5.8 percent of the total purchases involved. Many of the companies assigned to the Office of The Surgeon General were found to have realized no excessive profits and were accordingly cleared without refunds or price adjustments. The companies thus cleared realized an average profit of 5.1 percent. The companies from which refunds were obtained had an unadjusted profit of 18.8 percent. This was reduced by 11.32 percent, leaving an adjusted profit of 8.5 percent.²³ This trend continued during the fiscal year 1945, in which more than 400 companies were renegotiated, with refunds amounting to nearly \$10,000,000. The unadjusted profit was 20 percent, which was reduced after renegotiation to 10.17 percent. Thus during the war period, renegotiation reduced Medical Department expenses by a total of more than \$20,000,000.²⁴

The industries having the largest profits, before renegotiation, were as follows: hospital equipment, 25 percent; surgical instruments, 21 percent; sterilizers, 21 percent; drugs, chemicals, biologicals, 19 percent; x-ray equipment, 19 percent; and dental equipment, 18 percent.²⁵ No item of medical supply created more interest than blood plasma, and none was pursued more vigorously by renegotiation officers. The original price for processing the 250 cc unit of blood plasma ranged from \$6.75 to \$7.50. As of September 1, 1942, the price varied between \$4.35 and \$7.25, the lower price being that of Eli Lilly and Company. In October 1942, Lilly reduced its price to \$2.50 and voluntarily refunded \$25,000 on past deliveries. An additional refund of \$186,000 was made in February 1943. Since Lilly had declared that the price of \$2.50 per unit represented

RESTRICTED

~~RESTRICTED~~

its cost of production, exclusive of general expenses, renegotiation officers had reason to suspect that other processors were making excessive profits. The situation was rendered serious by the fact that requirements were large and the necessary production depended upon public donations of blood. If excessive profits were revealed, the entire blood plasma program would be adversely affected.

The industrial engineering firm of Sanderson and Porter was engaged to make a cost study of the nine processors of blood plasma.²⁶ According to the reports, which was rendered in June 1943, the prime manufacturing costs of the nine companies ranged from \$2.22 (Lilly) to \$4.03 (Bon Venu). Contracts with eight²⁷ of the companies were promptly renegotiated, and four of them were found to have realized excessive profits during 1942. Refunds recovered amounted to \$616,000 and represented an average price reduction of 17.27 percent. This left them with an adjusted profit of 6.7 percent. Seven of the companies were then renegotiated on the first six months of their 1943 business. This resulted in refunds aggregating \$1,469,000 and represented a price reduction of 30.35 percent. Before renegotiation, the companies had a profit of 35 percent; this was reduced to 6.91 percent. Subsequent refunds and price reductions brought the savings to \$5,900,000 as of June 30, 1944.

Extending Aid to Manufacturers

During the fiscal year ending July 1, 1942, contracts were placed with a total of 700 manufacturers. Although this represented a distinct increase over previous years, it was dwarfed by the great expansion of the following year, when 2,500 Medical Department contractors held a total of 25,000 contracts.²⁹ This increase in the number of manufacturers was caused by the conversion of numerous factories to the production of medical supplies, and by a much fuller use of small manufacturing establishments -- a development resulting, in part, from pressure exerted by the Smaller War Plants Corporation.³⁰ During the fiscal year 1943 -- the peak year for procurement -- contracts placed with small war plants totaled \$220,000,000, or 56 percent of all procurement.³¹ The remaining years of the war witnessed no increase in the number of contractors nor any considerable expansion of the size of plants, except those devoted to the production of penicillin, petrolatum dressings, artificial limbs, and mechanical prophylactics.³²

Even before the United States' entrance into the war, the expansion of manufacturing facilities required

~~RESTRICTED~~ 77

RESTRICTED

financial aid from the government--either loans from the Defense Plant Corporation or certificates of necessity, which allowed the manufacturer to amortize the cost of expansion over a five year period or during the course of the emergency, whichever was shorter. In 1940, a "very small percentage" of Medical Department facilities applied for certificates of necessity, but during 1941 a considerably larger number sought to amortize their expansion in this manner.³³ Working through the Under Secretary of War, the Medical Department used its influence to obtain the certificates of necessity from the Treasury Department. By the end of 1943, Medical Department contractors had expanded their plants sufficiently to care for the abnormal needs of the war, except in the production of litters, artificial limbs, penicillin, gas gangrene antitoxin, blood plasma, and other medical items which science developed and the changing military situation required. Several of the penicillin plants, for example, were financed with public funds supplied by the Defense Plant Corporation, but the greater number were built by private capital upon the basis of certificates of necessity. During the period July 1, 1943 to June 30, 1944, 136 applications for the certificates were considered by the Supply Service and forwarded to higher authority. On each of those applications, a report was prepared which showed the importance of the medical item to be produced, the relationship between requirements and existing facilities, and the suitability of the proposed facility.³⁴

In addition to an increase in the number of contractors and the expansion of plants, the production of urgently needed medical supplies was augmented by the establishment of the 24-hour work day and the 7-day week. Within less than ten days after the attack on Pearl Harbor, four great chemical companies, which produced raw materials for pharmaceuticals, were put on a 24-hour day. Mills producing gray goods for surgical dressings had been on three shifts for several months, and the surgical instrument manufacturers had worked two shifts per day for more than a year. Only the lack of skilled personnel prevented the addition of a third shift. The drug industry and other manufacturers of commercial-type items did not work to maximum capacity, for their production was more than adequate for all Army requirements.³⁵

Procurement officers of the Medical Department soon discovered, however, that neither plant expansion nor an increase in the work day could insure the full production needed by the war effort. In the rapidly tightening economy, shortages of manpower, machine tools, and raw materials were becoming increasingly acute. Consequently, it was a most important duty of procurement officers to aid

RESTRICTED

RESTRICTED

manufacturers in obtaining these essential components of production.

The earliest and the most troublesome problem, throughout the war period, grew out of the shortages of essential raw materials. Scarcities of drugs and metals which had previously been imported were anticipated, and some provision had been made for substitutes. But shortages in domestically produced raw materials were not expected, for the mobilization plans were not based upon a war of such magnitude that it would exhaust current production of steel, copper, aluminum, brass, and other material resources of the United States. Early in 1942, however, it became clear that the mighty military effort then being developed would cause grave shortages in the above-named metals and in many other raw materials. The remedies were obvious and were quickly applied. They consisted of conservation and centralized control.

As shortages became apparent, specifications of Medical Department items were revised, whenever practicable, and substitutes for scarce raw materials were specified. Hospital equipment and furniture, formerly made of corrosion-resisting steel, were constructed of iron, wood, and other less critical materials. The first aid packet originally had been covered with a brass case. Steel was substituted; and when that metal became scarce, laminated paper and lead foil were used. Sterilizers made of brass were succeeded by sterilizers constructed of galvanized iron. The aluminum-pole litter was abandoned for a time, and steel was substituted.³⁶ During the fiscal years 1942 and 1943, conservation measures of this type produced the following savings:³⁷

<u>Material</u>	<u>Quantity Saved</u>	
	<u>1942</u>	<u>1943</u>
Aluminum	186,333 lbs	102,000 lbs
Antimony	2,497 "	150 "
Brass	148,482 "	
Bronze	275 "	
Cadmium	680 "	7,000 "
Chromium	339,152 "	207,000 "
Copper	4,685 "	777,500 "
Formica	34,244 "	
Lead	8,142 "	
Manganese	148 "	
Nickel	199,358 "	44,000 "
Rubber	372,787 "	2,985,000 "
Silk	6,455 "	80,000 "
Steel	1,006,612 "	2,970,000 "
Tin	263,320 "	584,000 "
Zinc		6,000 "

RESTRICTED

Those great savings in raw materials were not without their ill-effects. Occasionally, it is true, the substitute material proved to be satisfactory, and there were instances when it revealed itself to be distinctly superior to the standard material it had replaced.³⁸ It is quite obvious, however, that substitute materials, in most instances, were second or third choices and were used only because the material of first choice was unobtainable. The inevitable result was the production of a number of Medical Department items which did not satisfactorily perform their purpose and which had short lives under rugged field conditions. Galvanized iron was not an acceptable substitute for brass in the manufacture of sterilizers, and the equipment made of this substitute material rendered service that was far less than satisfactory. The use of carbon steel produced a sturdy and durable litter, but its increased weight rendered it inferior to the aluminum-pole litter which it replaced. Plastic food trays, used as substitutes for the steel item, warped and cracked frequently. Bottle tops, formerly of metal, were made of a plastic material, with poor results. When stainless steel and aluminum became scarce, enamel ware was used in bed-pans, cooking utensils, etc., in hospitals, thus producing equipment that chipped and became unserviceable within a short period of time.

As the number of unsatisfactory items increased, the Medical Department made repeated attempts to convince the War Production Board and other control agencies that the importance of medical supplies justified the release of the comparatively small quantities of critical raw materials which were needed.³⁹ But it was not until 1944, when steel, aluminum, and brass became more abundant, that the unsatisfactory substitute could be abandoned. Then the Medical Department launched a program which it described as "reverse conservation." All specifications which had been amended to permit the use of substitute materials were carefully revised, and vigorous requests were made for the raw materials of first choice. Within a few months, brass shell sterilizers, aluminum-pole litters, and stainless steel bed-pans heralded the dawn of a more abundant day.⁴⁰

In addition to the conservation measures outlined above, the Medical Department sought to relieve the raw material shortages of its contractors by obtaining high preference ratings from the War Production Board and the Army and Navy Munitions Board. In these endeavors the Department was confronted by an all-embracing system of raw materials control which, although it was not inflexible, could not often be changed to aid a single technical service. Since this system of control profoundly

~~RESTRICTED~~

influenced Medical Department procurement, its main outlines are sketched in the following paragraphs.

The original priorities system, instituted in 1940 by the Army and Navy Munitions Board,⁴¹ established preference ratings based on the relative urgency of certain military items. The top priority rating of A-1-a was given to tanks; airplanes were rated A-1-b; and other items were rated A-1-c through A-1-h. Medical supplies for the Army during this early period, were given the rating A-1-d. These eight priorities ratings, the only ones in existence in 1940, were issued exclusively to manufacturers by the ANMB. The granting of a rating to a manufacturer gave him the right to place that rating on all orders for raw materials and component parts needed to complete the end-item. Since this was a small defense program rather than a large war program, no great difficulty was encountered in filling rated orders. The remainder of the country's production was not affected, except for some delays in filling civilian orders.

Early in 1941 the Office of Production Management was established, and it soon assumed complete priorities control over certain scarce materials. Regulations were issued prohibiting producers from filling civilian orders until all rated orders had been completed. The preference ratings, in addition, were greatly expanded. At the top level, two ratings were added: A-1-i, and A-1-k; these were followed by a new level, A-2 through A-10; also, there was established a third level which consisted of two ratings, B-1 and B-2. From the very beginning, however, those last two ratings were largely valueless, for the higher ratings got the scarce materials and the factory space. Two methods were employed in establishing priority ratings: (1) the "blanket rating," which extended a priority for certain kinds of items, thus rendering individual applications unnecessary; and (2) the ratings which were granted for individual orders or contracts.

In January 1942, the War Production Board was established, replacing the Office of Production Management and gradually assuming most of the priority functions exercised by the ANMB.

The priorities system never attempted to balance the issuance of preference ratings against the available supplies of raw materials. Indeed, the system was an attempt to find a substitute for balancing supply and demand, based on the theory that the relative urgency of different products was accurately reflected in the priorities. It should make no difference, therefore, how many preference ratings were issued, for when the materials and resources

~~RESTRICTED~~

RESTRICTED

were exhausted orders having a low rating would not be filled. For example, if enough A-9 or higher ratings were issued to use up the entire available supply, no orders with ratings below A-9 would be filled; and, since all orders of A-9 or higher were more urgent than lower orders, the objective of the system would be accomplished.

This kind of balance was never achieved, for there was a pronounced lack of uniformity in appraising urgency, and there was insufficient information upon which to base the appraisals. Who, in 1942, could declare with certainty that trench mortars were more important than field x-ray machines? If such a declaration were made in January 1942, who could believe it would remain valid throughout the succeeding months? This lack of faith in preference ratings smoothed the way for a priorities race. When it became obvious that an A-3 contract could not be filled, there was a tendency to re-rate the contract. This, of course, made the plight of low ratings more hopeless than ever. Just after Pearl Harbor, for example, it began to appear that the A-10 rating given to manufacturers of medical supplies and equipment was losing its effectiveness. Suppliers, fully occupied with higher ratings, were paying scant attention to A-10 orders.⁴² Before long, any rating below A-1, for steel, copper, or other critical materials, became valueless.

An attempt was made to solve this preference rating inflation by adding "super-ratings"--that is, by more inflation. AA was the first of these new ratings, added in 1941. By the end of the summer of 1942, many manufacturers had their mills booked solidly in advance on nothing but A-1 orders, and it became necessary to add a whole series of super-ratings, beginning with AAA as the emergency rating and followed by AA-1, AA-2, AA-3, and AA-4. Within a few months, some of these ratings had become the victim of still further inflation, and it became obvious that priorities alone could not control the flow of scarce materials.

In the meantime, the Medical Department had fared poorly under the priorities system as then established. Its contractors, generally speaking, had received A-1-d preference ratings, while medical supply contractors of the Navy had the advantage of A-1-a ratings. This severe handicap was rendered still more serious by the fact that the Air Corps, Signal Corps, and Ordnance Departments had A-1-a ratings for critical materials. This rendered it virtually impossible for Medical Department contractors to make deliveries within reasonable periods of time when critical raw materials were required. A portion of this difficulty was solved by the conservation measures described earlier in this chapter, but there were

limits beyond which conservation could not be pushed. It became necessary, therefore, to make numerous appeals for higher preference ratings on urgently needed items. In some instances, better ratings of the "blanket" type were assigned. In June 1942, a rating of A-1-a was granted for all depot freight handling equipment, and at the same time the Medical Department was authorized to give a rating of A-1-a to 65 percent of its contracts, the estimated percentage of its purchases which were being shipped overseas. This authorization also permitted the use of the A-1-b rating for all metal components not rated A-1-a. This, naturally, was a distinct aid to Medical Department procurement, but it must be remembered that the "super-ratings" added in 1941 and 1942 rendered the A-1-a rating far less valuable than formerly.

Late in 1942, the priorities system was supplemented by the Production Requirements Plan, which provided that every manufacturer using more than \$5,000 worth of certain scarce metals and metallic materials in a three-month period could obtain these metals only through allotments. An attempt was made to balance these allotments against the available supply by giving a preference rating to be used in obtaining the materials thus allotted. Aside from the great difficulties involved in attempting to balance supply and demand, the new plan was weak because it allotted materials on the manufacturers' statements of needs. Very obviously, a different approach to the problem was required.

The Production Requirements Plan had scarcely gone into effect before a new and more effective system was devised. Known as the Controlled Materials Plan, this system was first announced in November 1942 and was in full effect by July 1943. The main purpose of the plan was to coordinate production schedules with material supply and thus make certain that production requirements were satisfied. This was accomplished by adjusting requirements for critical materials to the supply, and by making available the proper type and quantity of material at the time required to meet approved programs. Seven claimant agencies, including the Army, Navy, Office of Civilian Supply, etc., were established. Each contractor was required to submit to his claimant agency a "bill of materials," specifying the materials required and indicating the time they must be received in order to carry out the authorized program. These bills of materials were then assembled by the claimant agency and submitted to the War Production Board, upon the basis of which the WPB allocated controlled materials to the claimant agency. These agencies, in turn, distributed allotments to prime contractors by means of allotment numbers, and the prime contractors passed on the allotment numbers

RESTRICTED

to sub-contractors and suppliers. Materials other than the three controlled materials⁴³ were made available through the priorities system and through conservation orders.

The Controlled Materials Plan proved to be far superior to anything previously devised. Medical Department contractors encountered very little difficulty in obtaining allotments of controlled materials, especially if orders were placed 60 days prior to the required delivery date. Considerable difficulty, however, was encountered in obtaining electrical components such as motors, starters, transformers, meters, high-voltage wire, etc.; but where great need could be shown, assistance from the WPB was obtained to expedite delivery.

Under the Controlled Materials Plan and the priorities system which accompanied it, Medical Department procurement officers had important duties. It was essential that the required production be scheduled in such manner that items would be delivered when needed, and that scarce materials and restricted manufacturing facilities were not devoted to the production of items until they were needed. Since requirements were never static and since plans for overseas operations were frequently changed, this involved a continuous study and control of production schedules. For example, scarce materials allotted to the production of one item must be speedily withdrawn when it was discovered that the production of another item had suddenly become more urgent. Procurement officers found that their task, in this respect, resembled that of an engineer who sits in a maze of pipes and opens and closes valves, thus directing the flow of critical materials to the areas that most needed them and restricting the flow of materials to areas of less urgent need. A similar task was accomplished in connection with the priorities system. Each contract which involved the use of scarce materials received a preference rating designed to supply the materials within the time limits allowed by the contract. Frequent adjustments were necessary, however, as the value of preference ratings fluctuated and as the comparative urgency of different production programs varied with the military situation. It was frequently necessary, moreover, to apply to the WPB for emergency ratings in order to expedite a contract whose speedy completion had suddenly become urgent.

In October 1943, the WPB permitted the Medical Department to extend a preference rating of AA-1 to 60 percent of its contracts (by dollar value) and a rating of AA-2x to the remaining 40 percent. This directive aided materially, as there were no restrictions and procurement officers were permitted to distribute the ratings in any way the changing situation required. This allowed the Medical Depart-

RESTRICTED

~~RESTRICTED~~

mont sufficient AA-1 ratings to obtain production material in the time required (except for very critical components) until the beginning of 1945. At that time, however, the supply situation began to change, and some materials, notably packing supplies, that could formerly be obtained with an AA-2x rating required an AA-1 rating. Indeed, many suppliers refused to accept orders; or, if they did accept, they could offer no assurance that delivery would be made, for they had a large back-log of AA-1 orders. As a result, it became necessary to give the higher rating to contracts that previously had been granted an AA-2x rating, and it soon became obvious that the 60 percent AA-1, 40 percent AA-2x pattern was not sufficient for Medical Department requirements. Attempts to have this pattern adjusted did not succeed. It became necessary, therefore, to process through the WPB each contract which required re-rating, and to study carefully each new contract before rating it, thus seeking to conserve the AA-1 ratings.

This sudden tightening of materials was due to a number of causes, the most important of which, probably, was the lack of sufficient manpower. There was, in addition, a general relaxation during the last quarter of 1944 when it appeared that the war in Europe was nearing its end. Contracts were drastically cut back or cancelled, causing mills which produced materials to curtail production. In this situation, Medical Department contractors consumed their inventories and refrained from re-stocking. When it was discovered that the war in Europe could continue for months, a great procurement rush began. Army and Navy contracts were released calling for the quickest possible delivery, and contractors sought to restore their inventories. This caused the mills and component manufacturers to be flooded with such a number of orders that 5 to 6 months delivery-time was not unusual. In order to deal with this situation, production directives and emergency preference ratings were obtained from WPB to speed the completion of the most urgent contracts.⁴⁴

In the meantime, procurement officers of the Medical Department were aiding contractors by extending many other types of assistance to them. Through the Production Service Branch of the Army Medical Purchasing Office, contractors received the aid they required in order to make prompt deliveries. Most frequently, as indicated in the foregoing paragraphs, higher preference ratings were required. Even after these preference ratings were granted, however, many problems remained, involving the delivery of raw materials and machinery, component parts, sub-contracting service, etc. These were "trouble spots" existing in contractors' plants, and only after close and continuous

~~RESTRICTED~~

RESTRICTED

study could they be solved. For example, in the spring of 1943, the Production Service Branch was informed that the manufacturer of blood transfusion sets was unable to obtain filters--a small strainer, 3 inches long by one-half inch in diameter, made of fine-mesh stainless steel wire cloth. "Trouble-shooting" officers made contacts with the filter manufacturer and learned that he had been unable to procure the fine-mesh wire cloth. This led the officers to the wire cloth manufacturer, who stated that he could not obtain the fine wire which he needed in the wire cloth. This, in turn, directed the attention of the officers to two manufacturers of stainless steel wire, and there began the real work of breaking the bottleneck in the blood transfusion sets. The wire manufacturers were having the usual difficulties in obtaining the special stainless steel in the proper size and formula. They had, in addition, encountered problems in controlling the hardening and annealing of the wire through the six successive drawing operations that reduced it to the diameter of a human hair. Limited capacity for drawing fine sizes, diamond dies that wore out too quickly, other high priority orders from Army and Navy buyers--all these reduced the production of wire for blood transfusion filters. Officers of the Production Service Branch emphasized the urgency of the demand for transfusion sets and smoothed the way for slight changes in specifications. This made it possible to produce greater quantities of wire which ultimately found its way into the filters of the transfusion sets.

Fortunately, most of the production problems did not require such a painstaking coordination of the efforts of prime and sub-contractors. Frequently, a telephone call to the manufacturer of a component part, supplier of raw materials, or a government agency was sufficient to remove a production problem. Sometimes a visit to a plant revealed a difficulty and rendered its solution possible.⁴⁵ What was required in all cases, however, was a system which would keep track of the contractors' progress and would inform procurement officers of all delays in production. The "Ten-Day Status of Procurement Report," developed early in 1943, was furnished to each buyer in the Purchases Division, Army Medical Purchasing Office, and showed the following data for all items assigned to the buyer:

Item Number	:
Authorization Number	
Contract Number	
Contractor's code number	
Quantity shipped in current month	
Quantity in transit	
Quantity authorized but not contracted	
Quantity contracted but not delivered	

86
RESTRICTED

~~RESTRICTED~~

Quantity scheduled but not delivered
Quantity delivered in current year.

Thus each buyer was given, every ten days, a complete resume on the status of all items for which he was responsible. This gave him a clear basis for forecasting, placing additional contracts, scheduling, and expediting the completion of contracts already placed. Many production difficulties were brought to the attention of the buyer, and thence to the Production Service Branch, through this report.⁴⁶ For example, during the fiscal year 1945, approximately 50 manufacturing establishments were visited to determine the status of production and to render aid whenever the completion of contracts was delayed.⁴⁷

Procurement officers exerted themselves, also, to assist manufacturers with manpower problems, which became increasingly serious as the war progressed. The operation of the Selective Service law had a constantly disruptive effect upon Medical Department contractors, for skilled and semi-skilled workers, whose replacement was difficult, were regularly inducted into the armed forces. Whenever the induction of a valuable worker was threatened, the contractor informed the procurement office, which immediately began efforts to obtain an occupational deferment for the worker. Contact was made with the local Selective Service Board by telephone, mail, and in some instances by personal visits. The worker's importance to the Medical Department contractor was urged upon the board, and representations were made in regard to the essentiality of medical supplies. If the request for deferment was rejected by the local board, the case was followed to the appeal board and, if necessary, to the State Selective Service Director. When all these efforts failed, the Chief of the Labor Branch in the appropriate Service Command was urged to transfer the worker to the Enlisted Reserve Corps, so that he could return to his factory and help complete the contract, or at least train a replacement. Early in the war officials of the Selective Service, especially at the lower levels, were reluctant to grant occupational deferments to the workers of Medical Department contractors, for they understood little of the Department's work and had even less information in regard to the importance of medical supplies. Pressed by the necessity of filling their quotas and sensitive to ill-informed public criticism, the local boards inducted many skilled workers whose loss delayed the completion of contracts for vitally needed supplies. This difficulty became especially troublesome in 1943, when local boards were "scraping the bottom of the barrel" in an effort to fill the very heavy quotas demanded in that year. By the latter part of 1943, however, the general public and the local boards were becoming more

~~RESTRICTED~~

RESTRICTED

acquainted with the importance of medical supplies--a development caused largely by radio, newspaper, and magazine advertisements. The attitude of local boards began to change and deferments were granted in greater numbers. Approximately 2,500 deferments had been obtained by September 1944,⁴⁸ and more than 1,100 additional deferments were granted between that date and June 30, 1945.⁴⁹

Other manpower problems attracted the attention and stimulated the activity of procurement officers. Strikes, although not abundant in number nor long in duration, occasionally hampered the production of medical supplies and thus called for remedial action. Conferences attended by union representatives, management, War Labor Board representatives, United States Conciliation Service officials, and Medical Department labor officers usually resulted in a prompt return to work.⁵⁰ It was found to be more profitable, however, to prevent strikes, and for the accomplishment of this purpose the Medical Department exerted itself to show the workers the importance of their products and to obtain wage increases for them. The Army and Navy "E" flags were awarded to plants with outstanding production records, and at the ceremonies during which these awards were made the workers and the management were praised for their contribution to the fighting fronts. Morale rallies were held frequently in the plants of Medical Department contractors, at which appropriate movies were shown depicting the actual part medical supplies played in the war. Wounded veterans appeared at these rallies and related personal experiences, which showed graphically the importance of the workers' participation in the war effort. Procurement officers rendered assistance, moreover, in processing requests for wage increases to the War Labor Board. These increases in wages not only reduced the probability of strikes, but also made labor recruitment easier. In this connection, higher manpower priorities were obtained for the contractors, which resulted in increased labor referrals from the United States Employment Service.⁵¹

The Inspection of Medical Supplies

Prior to 1943, medical supplies were inspected after purchase in a manner which had been followed for many years. When supplies were received at depots, samples were withdrawn and tested for compliance with specifications. Samples of sterile solutions and products were forwarded to the Food and Drug Administration, and other supplies which the depot was unable to test were forwarded to the laboratories of the procurement offices, either St. Louis or New York. Until a favorable report had been received on sam-

RESTRICTED

RESTRICTED

ples sent away for testing, the stocks from which they were drawn were segregated and made unavailable for issue. This system of inspection was satisfactory during peace time. The quantities of supplies purchased were small, and they were procured from standard manufacturers who maintained adequate testing laboratories and were well acquainted with Medical Department specifications. No difficulties proceeded from the delay in making supplies available for issue, since the depots maintained adequate stocks to meet all current demands. If a shipment of supplies failed to pass the tests, it could easily be replaced in ample time.

Following the great increase in the Army and the rapidly mounting demand for medical supplies, the condition outlined in the foregoing paragraph ceased to exist. The quantities of supplies purchased vastly increased, and they were procured from a large number of manufacturers, some of whom had recently converted their factories to war production. Consequently, these manufacturers were not thoroughly familiar with Medical Department specifications, and many of them did not possess adequate testing facilities. The rejection of medical supplies led to serious embarrassments, for such rejections resulted in the loss of critical raw materials and the waste of valuable manufacturing space, labor, transportation, and packing supplies. It soon became obvious that the inspection of medical supplies upon delivery, if not accompanied by inspections during the manufacturing process, was a luxury that the Medical Department could ill-afford during the war.

In January 1943, therefore, an Inspection Section was established in the New York Medical Department Procurement District. Inspectors who possessed technical training and experience in the testing of various types of medical supplies were recruited and given still further training. The country was then divided into a number of areas, and the inspectors were assigned to the plants of Medical Department contractors. Thirty-three inspectors entered plants in the Greater New York City area; 18 were assigned to the Middle Atlantic area (including up-state New York, Pennsylvania, Maryland, Ohio, and New Jersey); 9 were assigned to the New England area; and 11 were assigned to the Western area. These plant inspectors performed a three-fold purpose: (1) to check the contractor's inspection methods, (2) to determine compliance with contract specifications, and (3) to prevent the shipment of sub-standard supplies to the depots. Occasionally, the inspectors observed inadvertent departures from specifications, which were quickly corrected by grateful contractors. At times, also, the ambiguous wording of some specifications and purchase descrip-

RESTRICTED

~~RESTRICTED~~

tions led to different interpretations by contractors and inspectors. These were soon settled by reference to chief inspectors and procurement officials. Perhaps the greatest difficulties arose when plant inspectors approved the shipment of urgently needed items which did not conform to all technical requirements of specifications but which, nevertheless, were usable and suitable for their intended purpose. These departures from specifications confused depot inspectors, who, although they had been informed of the new policy, returned a number of shipments on the grounds that they were too much at variance with specifications. This friction and disagreement was especially important in regard to sub-standard surgical instruments. At length, a conference in New York, attended by both plant and depot inspectors, established a procedure which satisfied all. In the future (after June 1943) when depot inspectors refused to accept a shipment approved by plant inspectors, the commanding officer of the Army Medical Purchasing Office received reports from both inspectors and rendered a binding decision.

The system of plant inspections appears to have been an unqualified success. In 1943, approximately 800 plants located in 29 states were served by the inspectors, and by the following year the number of plants increased to more than a thousand. The cost of the inspection was very modest -- .103 percent of the cost of supplies shipped in 1943, and .157 percent in 1944. No figures are available to show the savings effected in scarce materials, labor, and transportation which resulted from assembly-line inspection, but these savings probably were of considerable importance.⁵²

It has been indicated that the plant inspections supplemented rather than replaced the final inspections at the receiving depots. It should be made clear, also, that the employment of the testing laboratories of the Food and Drug Administration and the Army Medical Purchasing Office continued throughout the war. In fact, the laboratory of the procurement office, transferred from Binghamton to New York City in February 1943, was enlarged and equipped to perform examinations both for inspection and the development of specifications.⁵³ In the fiscal year 1944, a total of 5,429 formal examinations was performed by this laboratory, and in the fiscal year 1945 the number of examinations was increased to 5,572.⁵⁴

Statistics on Procurement

It is difficult to express the magnitude of medical supply operations during World War II. Fully to under-

~~RESTRICTED~~

RESTRICTED

stand and to comprehend the vastness of the program, the reader would be compelled to view the supplies and equipment as they left the assembly lines, or as they were packed in freight cars, trucks, and cargo airplanes, or were stored in the medical depots. Under those circumstances, he would see enormous quantities of the approximately 7,000 standard items procured by the Medical Department--billions of atabrine tablets, millions of surgical needles, thousands of x-ray machines. He would see huge storage rooms piled high with hospital beds, vaults filled with narcotics, freight cars full of penicillin. He would see a vast panorama of supplies and equipment, ranging from the simple and inexpensive wooden tongue depressor to the incredibly complex electro-encephalograph.

Such a journey of inspection, however, is not practicable. The reader must be informed in terms of figures, unsatisfactory as they are. During the first four months of 1945 the weight of medical supplies and equipment shipped by contractors amounted to approximately 76,132,000 pounds. By comparing this weight with the cost of the supplies,⁵⁵ a rough ratio is produced which enables us to estimate the total weight of all medical supplies procured during the period July 1, 1941 to June 30, 1945 at 843,297,778 pounds. At 30,000 pounds for each car, these supplies would fill 28,199 freight cars and would form a freight train 235 miles in length.

Another measure of the procurement program is the dollar value of all medical supplies delivered by contractors. In the table below, the expenditure figures are given for the fiscal years 1939-1945, thus enabling the reader to observe the growth of purchasing operations:⁵⁶

Fiscal Year	
1939	\$ 2,511,022.00
1940	5,585,575.00
1941	69,135,577.00
1942	183,499,453.00
1943	282,386,608.00
1944	332,748,235.00
1945	170,704,575.00
Total	<u>\$1,046,571,000.00</u>

The foregoing table includes expenditures for supplies purchased for the Army, the CAD program, and medical Lend Lease from the fiscal year 1943 to the end of the war. Prior to July 1, 1942, Lend Lease purchases were financed with allotments of funds received from the Office of Lend Lease Administration, and such expenditures, therefore, are not included in the table.

RESTRICTED

Prior to January 1, 1943, the following procedure was employed in paying for all supplies and equipment purchased by the Medical Department: When a contract or purchase order was issued, the Army finance office to make payment was designated, and a copy of the instrument was forwarded to the proper finance office. After the supplies were produced and shipped, the contractor sent his invoice to that finance office, which also accepted the receiving report from the depot to which the supplies were shipped. When these three documents -- contract, invoice, and receiving report -- were assembled, the finance office drew a check in favor of the contractor and charged it to Medical Department funds. This simple system worked satisfactorily during peacetime, but the heavy procurement of 1942 caused it to slow down and, at times, to stall. Depots were sometimes negligent in sending receiving reports, and contractors were not always prompt in mailing their invoices. The file into which a contract was placed might remain incomplete for weeks or months after the supplies had been delivered. The finance offices were too busy to request the missing documents and to maintain a follow-up system which would insure their prompt receipt. Thus, the payments on many contracts were delayed far beyond a reasonable period, and some contractors were compelled to seek loans from Federal agencies.

In the fall of 1942, the Fiscal Division, SGO, produced a remedy for this problem. Eleven fiscal branch offices were organized and established to handle Medical Department fiscal affairs in the continental United States.⁵⁷ These offices relieved the Army finance offices of all duties connected with the auditing of contractors' accounts. The appropriate fiscal branch office (generally either New York or St. Louis) received both the invoices and the receiving reports. After collating these with the contract, the fiscal office certified the invoice for payment and dispatched it to the Army finance office, which drew the check. The new system proved to be far superior to the one it replaced. Delays in payment were almost entirely eliminated, for the fiscal offices maintained a follow-up system that called for and obtained all the documents needed to audit the accounts. Changes in contracts and in quantities shipped were promptly communicated to the fiscal officer, thus enabling him to certify for speedy payment the invoices on all completed contracts.⁵⁸

~~RESTRICTED~~

Notes for Chapter IV

- 1 Lieutenant Colonel F. C. Tyng to the Contract Distribution Division, Office of the Under Secretary of War, December 12, 1941 (Record Room, SGO, 381.-1).
- 2 For a discussion of procurement policies before Pearl Harbor, see Chapter II.
- 3 Until the fall of 1944. At that time the Stock Control Division, which determined purchase requirements, was transferred to New York.
- 4 Annual Report of Activities, Army Medical Purchasing Office, 1944, pp. 30-31 (Historical Division, SGO, 024.-6); Annual Report of Activities, Materiel Standards Division, AMPO, 1945, p. 7 (Historical Division, SGO, 319.-1).
- 5 ASF Circular Letter No. 121, dated November 17, 1943.
- 6 See Colonel Paul I. Robinson to the Chief, Supply Service, August 11, 1944 (Historical Division, SGO, 400.12-1).
- 7 Major Arthur Hornbacher, "Determination of Purchase Requirements" (Historical Division, SGO, 400.12-1); Inventory Control Branch, Annual Report, 1944, pp. 1-3 (Historical Division, SGO, 319.1-2).
- 8 Annual Report of Activities, Army Medical Purchasing Office, 1944, pp. 10-11 (Historical Division, SGO, 024.-6).
- 9 Control Division, SGO, "Report on Administrative Developments, Office of The Surgeon General," December 1, 1942, pp. 5-6 (Historical Division, SGO, 319.1-1).
- 10 Under Secretary of War Robert P. Patterson to The Surgeon General, December 17, 1941 (Record Room, SGO, 400.12-1).

~~RESTRICTED~~

RESTRICTED

11

Ibid., December 29, 1941 (Record Room, SGO, 400.12-1).

12

Major Arthur Hornbacher, "Report of Procurement Operations," January 1, 1942 to December 31, 1942 (Historical Division, SGO, 400.12-1).

13

Lieutenant Colonel F. C. Tyng to the Under Secretary of War, December 22, 1941 (Record Room, SGO, 400.12-1).

14

Major Arthur Hornbacher, "Purchasing Methods: Negotiations," pp. 1-2 (Historical Division, SGO, 400.12-1).

15

Annual Report of the Supply Service, 1943, p. 2 (Historical Division, SGO, 024.6-10).

16

This was similar to, and the successor of, Standard Form No. 32 which was used prior to the war.

17

Major Arthur Hornbacher, "Purchasing Methods--Contracts, 1941-1945" (Historical Division, SGO, 400.12-1).

18

Major J. E. Gallagher, "Legal Activities in Procurement, 1941-1945" (Historical Division, SGO, 400.12-1).

19

Annual Report of Activities, Army Medical Purchasing Office, 1944, pp. 20-21 (Historical Division, SGO, 024.-6).

20

Ibid., pp. 20-21.

21

Ibid., p. 9. The overall ASF decline in prices, during the same period was only 1.9 percent.

22

Annual Report of Supply Service, 1943, pp. 19-20 (Historical Division, SGO, 024.6-10).

23

Annual Report of the Renegotiation Division, Supply Service, 1944, pp. 4-5 (Historical Division, SGO, 319.1-2).

RESTRICTED

~~RESTRICTED~~

24

Closely related to renegotiation was the enforcement of the Royalty Adjustment Act which eliminated excessive royalties on patents and resulted in the recovery of approximately \$5,000,000.00 on Medical Department contracts.

25

Ibid., pp. 4-5.

26

Abbott Laboratories, Ben Venue Laboratories, Cutter Laboratories, Eli Lilly and Company, Hyland Laboratories, Lederle Laboratories, Parke, Davis & Company, Reichel Laboratories, and Sharp & Dohmo, Inc.

27

The ninth firm was assigned to the Ordnance Department.

28

Annual Report of the Renegotiation Division, Supply Service, 1944, p. 10-14 (Historical Division, SGO, 319.1-2).

29

Annual Report of the Supply Service, 1943, p. 3 (Historical Division, SGO, 024.6-10).

30

Perhaps it should be noted that this development, although it helped to maintain a balance between the large and small corporations, did not always result in economical production. The manufacturing costs of the smaller plants frequently were higher than those of larger plants. There were times when Medical Department buyers wished to procure from a large supplier all the quantities of an item currently needed, but were prevented by the Smaller War Plants Corporation.

31

Annual Report of The Surgeon General for the Commanding General, ASF, 1943, p. 30 (Historical Division, SGO, 319.1-2).

32

Annual Report of Liaison Branch, Purchase Division, Supply Service, 1945, p. 1 (Historical Division, SGO, 319.1-2).

33

Lieutenant Colonel C. F. Shook to Lieutenant Colonel F. C. Tyng, March 1, 1941 (Record Room, SGO, 400.12-1).

~~RESTRICTED~~

RESTRICTED

34

Annual Report of the Supply Service, 1944, p. 4 (Historical Division, SGO, 319.1-2).

35

Lieutenant Colonel F. C. Tym to Major Charles J. Norman, December 15, 1941 (Record Room, SGO, 400.12-1).

36

Annual Report of The Surgeon General for the Commanding General, ASF, 1943, pp. 26-27 (Historical Division, SGO, 319.1-2).

37

Annual Report of the Finance and Supply Service, 1942, p. 13; Annual Report of the Supply Service, 1944, pp. 7-8 (Historical Division, SGO, 024.6-10).

38

The laminated paper and lead foil cover of the first aid packet is considered to be superior to both the brass and steel case which were used earlier.

39

Extracts from a speech by Lieutenant Colonel C. F. Shook, p. 10 (Historical Division, SGO, 381.-1).

40

Annual Report of the Liaison Branch, Purchasing Division, Supply Service, 1944, p. 3 (Historical Division, SGO, 319.1-2).

41

Hereafter referred to as the ANIB.

42

Mr. George A. Lilly, Managing Director of the American Dental Trade Association, to Lieutenant Colonel C. F. Shook, December 13, 1941 (Record Room, SGO, 381.-1).

43

Carbon steel, copper, and aluminum were the controlled materials.

44

The foregoing section on priorities and materials control is based largely upon two studies made by procurement officers: Captain Dovon A. Davis, MAC, "Effect of Priorities on Procurement" and Major T. M. Salisbury, "Priorities, Allocations, and Materials Control" (Historical Division, SGO, 400.12-1). In addition, annual reports of the Supply Service, SGO, and of the Army Medical Purchasing Office have been consulted.

RESTRICTED

~~RESTRICTED~~

45

Major N. K. Ingraham, "Production Control" (Historical Division, SGO, 400.12-1).

46

Annual Report of the Army Medical Purchasing Office, 1943, p. 6 (Historical Division, SGO, 024.-6).

47

Annual Report of Contractors Service Branch, AMPO, 1945 (Historical Division, SGO, 319.1-1).

48

Captain C. M. Evans, "Manpower," p. 7 (Historical Division, SGO, 400.12-1).

49

Annual Report of the Contractors Service Branch, AMPO, 1945 (Historical Division, SGO, 319.-1).

50

Captain C. M. Evans, "Manpower," pp. 4-5 (Historical Division, SGO, 400.12-1).

51

Annual Report of the Army Medical Purchasing Office, 1944, pp. 19-20 (Historical Division, SGO, 024.-6).

52

Major John A. Pigott, "Inspection" (Historical Division, SGO, 400.12-1).

53

Annual Report of the Army Medical Purchasing Office, 1943, p. 4 (Historical Division, SGO, 024.-6).

54

Annual Report of the Materiel Standards Division, AMPO, 1945, pp. 3-4 (Historical Division, SGO, 319.-1).

55

This cost, for the period mentioned, amounted to \$66,801,000.

56

Expenditure figures for the fiscal years 1939, 1941, and 1942 are derived from the Annual Report, Finance and Supply Service, 1942, p. 9 (Historical Division, SGO, 024.6-10). Figures for 1943, 1944, and 1945 were prepared by the Fiscal Division, SGO, and are contained in a memorandum from Lieutenant Colonel Walter J. Cummins to Lieutenant Richard E. Yates, dated October 25, 1945 (Historical Division, SGO, 400.12-1).

~~RESTRICTED~~

RESTRICTED

The quantity of supplies contracted for in 1943 was considerably larger than the expenditures figures indicate, and the quantity contracted for in 1944 was smaller than these figures indicate. This apparent discrepancy is explained by the fact that after June 30, 1943, no expenditures were recorded against 1943 accounts. At that date, unliquidated obligations of approximately \$225,000,000 were transferred to the fiscal year 1944 accounts. Many of the expenditures of that year, therefore, apply to 1943 obligations. It is impossible, however, to determine the total obligations for 1943, for cancellations and terminations of 1943 contracts were posted as current year transactions to 1944 accounts. But there can be no doubt that, so far as contracting for supplies is concerned, the fiscal year 1943 was the most important year of the war. It appears that approximately \$500,000,000 was obligated during that year.

57

These offices were located at Binghamton, N. Y., New York, N. Y., Richmond, Va., Savannah, Ga., Chicago, Ill., St. Louis, Mo., San Antonio, Texas, Denver, Col., San Francisco, Calif., Los Angeles, Calif., and Seattle, Wash. In 1944, the field organization was changed by the establishment of four regional fiscal offices (reduced to three in 1945) and 14 subsidiary offices.

58

Lieutenant Colonel Walter J. Cummins, "Notes on the Fiscal Division, SGO," September 1, 1945, pp. 3-4, 8-9; Major Arthur Hornbacher, "Relation of Purchasing Office to Fiscal Office," November 10, 1944, pp. 1-4 (Historical Division, SGO, 400.12-1).

RESTRICTED

~~RESTRICTED~~

CHAPTER V
THE PROCUREMENT OF PROBLEM ITEMS

Introduction

The foregoing chapter was devoted to the general procedures and problems involved in the procurement of medical supplies during World War II. This chapter describes the problems encountered in the procurement of certain important items which, for a variety of reasons, did not lend themselves to routine purchasing operations. Numerous items could be selected for this special treatment, for many of the articles of supply and equipment were procured in sufficient quantities only with great difficulty. The present chapter, however, will be limited to a discussion of five classes of items, all of which have the following characteristics: (1) of great importance to the medical service, (2) needed in large quantities, and (3) difficult to procure. Since these same characteristics were possessed by many other problem items, the present study may throw light upon a large area of medical procurement which, because of space restrictions, cannot here be described in detail.

Surgical Dressings

The surgical dressings procured by the Medical Department consisted of approximately seventy-five items, including bandages, absorbent cotton, gauze, surgical masks, abdominal packs, adhesive plaster, pads, plaster of paris, first aid dressings, and surgical sponges. With the exception of the first aid packets and a few other special-type dressings, all the items were manufactured in large quantities for civilian use prior to 1939. Consequently, no difficulty was anticipated in obtaining most of them from the usual commercial channels in the event of war. During World War I, the local chapters of the American Red Cross had prepared enormous quantities of bandages, dressings, and sponges for the Medical Department; but supply officers, as late as 1939, thought that such outside aid would be unnecessary in the war which was then brewing. This opinion was well expressed by Surgeon General C. R. Reynolds in a letter to the Chairman of the Red Cross:

Because the war-time supplies required by the Medical Department have been determined and definite plans made and kept up-to-date for their procurement in event of emergency, there no longer exists the same opportunity for the Red Cross to assist

~~RESTRICTED~~

~~RESTRICTED~~

in obtaining material for the care of the sick as occurred during the World War. . . .¹

After his retirement in June 1939, General Reynolds adhered to and more fully explained this opinion. He declared; "To ask Red Cross to prepare surgical dressings, etc., which are fabricated in wholesale quantities by modern machinery would be uneconomical and discouraging to volunteer workers. It would also be contrary to public policy in time of war to divert the flow of any considerable amount of raw materials to Red Cross or permit Red Cross and the Army and Navy to compete in the procurement of supplies."²

This plan, like many of the procurement plans, went awry. It grossly underestimated war-time requirements, and it assumed, without sufficient warrant, that manufacturers of dressings would greatly expand their production. This fallacy of the plan was exposed in April 1940, by a representative of the Kendall Company, who informed the Red Cross that "the surgical dressings industry (including our competitors as well as ourselves) does not have sufficient capacity to keep the Army and Navy supplied with ready-made dressings in the event of war." A great increase in present production was not practicable, for that would require new machinery and new buildings and would leave the manufacturers with an over-expanded plant after the war. The Army would be compelled, therefore, to purchase surgical dressings material in bolt form and make its own dressings, perhaps with the aid of the Red Cross.³ When this information was presented to the new Surgeon General, the Medical Department abruptly dropped its procurement plans for surgical dressings and appealed to the Red Cross for aid. "Since it has been definitely established," The Surgeon General wrote, "that machine-made dressings can be produced in quantity only sufficient for peace-time needs, it is the studied opinion of this office, . . . that in time of emergency full and complete reliance must be had sic upon the good offices of the Red Cross to furnish ready-made dressings."⁴

After receiving assurances that the Red Cross would extend its aid as in the first World War, the Office of The Surgeon General requested authority from The Adjutant General "to enter into an agreement whereby the Medical Department of the United States Army may procure the requisite materials which will be turned over to the American Red Cross and receive in exchange the equivalent in prepared dressings." These dressings were to constitute "an essential war reserve."⁵

This request was promptly granted,⁶ and local chapters

~~RESTRICTED~~

RESTRICTED

of the Red Cross made preparations to enlist the women of America in this vital activity. Gauze was purchased from surgical dressing manufacturers, cut into rectangles or squares of the proper size, and shipped to Red Cross chapters throughout the country. In these chapters, volunteer workers processed the gauze into surgical sponges, surgical masks, and abdominal pads. These supplies were sent to medical depots for storage until they were shipped overseas or to zone of the interior installations. Immediately before use, they were sterilized in the central supply rooms of the hospitals to which they were issued.

Figures are not readily available to show the extent of these activities prior to 1942; but from August 1942 to the end of 1944, a total of nearly 300 million yards of gauze was purchased by the Medical Department and sent to the Red Cross chapters. From this gauze, it was estimated that approximately 5 billion sponges, masks, and pads were prepared.⁷ During the winter and spring of 1945, production of these supplies continued at such a rate that by April 1945 sufficient stocks had been built up to warrant the gradual closing of the work rooms; and in July of that year production ceased altogether.⁸

It should not be assumed, however, that the aid extended by the Red Cross, valuable as it was, solved all problems involved in the procurement of surgical dressings. Labor shortages and the lack of adequate plant capacity threatened to restrict production of dressings not prepared by the Red Cross to a quantity far below anticipated requirements. Foreseeing this difficulty, procurement officers of the Medical Section, New York General Depot, called a meeting in August 1940 which was attended by representatives of all known manufacturers of surgical dressings. These representatives were informed of the surgical dressings procurement program, the mounting requirements in each item, and the necessity for speedy deliveries. They were told that the quantities required would be allocated to the several manufacturers on the basis of delivery time, price, and the production capacity of each firm. After receiving this information, the representatives returned to their plants and conferred with their production managers. One week later, they returned to New York and submitted bids. After an examination of these bids, the representatives were assembled once more. Prices and delivery schedules were discussed and established. Requirements were allocated on the bases noted above. The manufacturers were warned that requirements were constantly increasing, and that only through an expansion of plants could the necessary production be attained. Help was promised in obtaining new tools, equipment, and labor. Within two weeks, contracts with each

**101
RESTRICTED**

manufacturer had been negotiated, and increased production was soon a reality.⁹

The requirements for surgical dressings were greatly augmented when the United States entered the war. In addition, Lend Lease requirements and the large quantities of gauze purchased for the Red Cross placed heavy burdens upon an industry ill-equipped to bear them. There was not enough factory space, not enough looms, not enough workers, not enough bleachery capacity. And, in some instances, there was insufficient incentive on the part of the manufacturers to produce the "gray goods" out of which surgical dressings were made, for the available looms could be far more profitably employed in weaving higher priced material.¹⁰ Manufacturing capacity was increased by the expansion of factories and the addition of new equipment, often aided by certificates of necessity which provided for the speedy amortization of the new capital. These expedients proved to be helpful, but they did not provide sufficient capacity to produce the vast quantities of surgical dressings needed. Accordingly, a new factory was established in Greenville, South Carolina, with funds advanced by the Defense Plant Corporation. This new establishment (Convenience, Incorporated) produced exclusively for the Medical Department until the latter part of 1944, when a sufficient quantity of most surgical dressings had been procured.

There were some items of surgical dressings whose procurement was attended with considerable and peculiar difficulties and which deserve a more detailed treatment. The production of camouflage dressings, for example, created problems which could not be routinely solved. By the summer of 1943, it had been well established that white surgical dressings in the Pacific theaters were attracting the attention of Japanese snipers and pilots, most of whom appeared to be imperfectly acquainted with the terms of the Geneva Convention. The decision was made, therefore, to dye in "field brown" all field dressings used in the Pacific theaters, and in July 1943 instructions were issued to that effect. This decision presented a number of problems to the Supply Service and its contractors, including the toxicity of the dyes, effect on the absorbency of the gauze, the industry's ability to convert to dyed dressings, and the productive capacity of dyers and finishers.¹¹ Manufacturers of surgical dressings, the bleachers, and the dyers were invited to attend a conference at the purchasing office. These suppliers were informed of the problems confronting the Medical Department, and from them was obtained information on the capacity of their plants for bleaching and dyeing the dressings. As a result of the conference, out-

RESTRICTED

standing contracts for several items of white dressings were modified, and work on the "field brown" dressings was started in September 1943. After several experiments, the dyers produced a dye which was non-toxic and which had only slight effects on the absorbency of the gauze. By November 1943 more than 13 million individual dyed dressings had been delivered to the depots. Throughout the remainder of the war, the following dressings were supplied either in "field brown" or in Olive Drab No. 7: adhesive compresses, two-inch gauze compresses, four-inch gauze compresses, compressed bandages, small first aid dressing, large first aid dressing, first aid packet, and triangular bandages.¹²

The petrolatum dressing, which was developed late in the war, encountered some difficulties in production worthy of note. This dressing, consisting of a gauze bandage impregnated with petrolatum, permitted the application of sterile petrolatum to a burned surface and thus was a significant medical advance in a war which, more than any previous one, produced a great number of serious and painful burns. Two technical difficulties confronted the sole supplier of this item--the development of a technique to produce a sterile dressing and the manufacture of a grease-proof package which would withstand high sterilization temperatures. Considerable delay was experienced, also, in building the new plant necessary for the production of this item. The petrolatum and the gauze bandage were sterilized separately and were then brought together under sterile conditions. The envelope for the individual dressing was a lamination of Vinylite and aluminum foil, which was heat-sealed after the bandage was impregnated with the sterile petrolatum. Three of these dressings were then packaged in a Reynolds metal envelope. The first shipment, consisting of 6,000 dressings, was delivered to the Kansas City Medical Depot early in June 1945.¹³ It is improbable, however, that any of these dressings were used in an overseas theater prior to the cessation of hostilities.

The difficulties involved in the procurement of the first aid packet were more important and continued for a longer period of time. This packet contained a small, sterile dressing and was carried by each soldier in a pouch attached to his belt. Approximately 8 million were required for initial equipment and the replacement rate was 60 per thousand men per month in the zone of the interior and 220 per thousand men in the overseas theaters.

The procurement plans made during the 1920's and

RESTRICTED

~~RESTRICTED~~

1930's indicated clearly that trouble was anticipated in the procurement of the first aid packet. In March 1937 the Office of The Surgeon General informed the Assistant Secretary of War that the existence of only one set of dies,¹⁴ owned by the Medical Department, limited the manufacture to one firm and thus rendered it impossible to produce a quantity sufficient for a war of magnitude. Indeed, it was estimated that a deficit of 4 million packets would develop 90 days after mobilization. Authority was requested, therefore, to procure one additional set of dies. This request provoked no action, and in October 1937 stronger representations were made to the Assistant Secretary of War. This time The Surgeon General asked for authority to purchase two additional sets of dies.¹⁵ This request appears to have been rejected, but the sole supplier of the item (Bauer and Black) acquired a set of dies sometime in 1940.¹⁶ This made it possible to employ an additional supplier, the Acme Cotton Products Company, which used the Medical Department's dies.

Meanwhile, in 1940, a contract was signed with the two suppliers calling for the production of 2 million first aid packets, but it was estimated that complete delivery would not be obtained until March 1942.¹⁷ Brass sheeting, needed to manufacture the metal case which enclosed the dressing could not be obtained in sufficient quantities.¹⁸ An attempt was made to solve this material shortage by substituting copper for brass in contracts negotiated after March 1941 but soon after the attack on Pearl Harbor copper was no longer available. Accordingly, steel was substituted for copper in 1942, and two additional suppliers were obtained and prevailed upon to provide themselves with dies. Shortly after contracts had been made with these two firms, the War Production Board refused to allocate any more steel for the first aid packet.¹⁹ During the early part of 1943, while production was steadily falling behind requirements, a plastic container was developed for the first aid dressing, and an order was placed with the Acme Cotton Products Company. It appears, however, that this plastic container had not been sufficiently tested before it was placed in production, for it proved to be thoroughly unsatisfactory. The package warped and broke open; consequently, it was neither water-proof nor germ-proof.²⁰

Once more, medical supply officers sought a material which would adequately protect the sterile dressing under field conditions. Their attention was soon attracted by the Reynolds metal package, and after a thorough testing it was adopted as the standard container of the first aid dressing. After compression, the dressing was wrapped in paper and sterilized. It was heat-sealed in a bag con-

~~RESTRICTED~~

RESTRICTED

tainer made of laminations of dense kraft, asphaltic base compound, and a cellulose base sheet coated with a thermo-sealing compound. The package was then enclosed in a double sleeve made of a solid wax-impregnated kraft board. In all respects, this new container was as satisfactory as the original, brass-covered packet, and in three important respects it was superior. Made of less expensive and more easily worked materials, it was approximately 20 percent cheaper than the brass case. It was simpler to open and thus the dressing was more readily available to a wounded man. Finally, the abandonment of the metal case no longer restricted manufacture to firms possessing the dies, but threw open the production of the packet to a larger number of contractors. In 1944, for example, seven manufacturers had contracts for this item and were producing a quantity sufficient to satisfy all requirements.²¹

Blood Plasma >

Although the manufacture of dried blood plasma antedates World War II, this product received such an impetus from war-time needs that it had many of the characteristics of a new item. So far as the United States Army was concerned, the procurement of blood plasma began in February 1941, when a small shipment was received from Sharp and Dohme, Inc., owners of the patent for processing human blood into dried plasma.²² Small additional amounts were procured during the remainder of 1941, but it was not until after the attack upon Pearl Harbor that a large-scale procurement program was launched. Blood plasma was administered to a large number of casualties in that attack, and the beneficial results obtained in the treatment of shock, burns, and other conditions associated with the loss of blood and tissue fluids convinced medical officers that this blood substitute was imperatively demanded.

Through the cooperation of the Army, Navy,²³ National Research Council, the American Red Cross, and commercial biological manufacturers, a procurement program was instituted which called for the production of not less than 700,000 units of dried plasma for the Army.²⁴ By 1943, the Red Cross had organized 33 bleeding centers and was receiving blood donations from the public at a rate of 90,000 per week. Through the efforts of the Medical Department, the patents owned by Sharp and Dohme, Inc., were made available to eight other commercial laboratories without the payment of royalties. The blood obtained from the public was immediately placed in special containers, where it was kept cool by dry ice en route to the processors. The "bleeding" program was so planned, that each processor was supplied with all the blood necessary to operate at .

RESTRICTED

~~RESTRICTED~~

maximum capacity.

The processing plants received the blood, put it through an intricate manufacturing process, tested the product, and shipped the units of dried plasma to medical depots in all parts of the country. The problems involved in production were numerous and important. First of all, each laboratory had to construct special buildings for the project or convert existing structures. Each laboratory, in addition, had to provide itself with many items of new equipment, including refrigerating units, centrifugos, freezing units, drying units, distilling apparatus, sterilizers, and equipment for testing. Emergency preference ratings were obtained to expedite the production and delivery of this equipment, and throughout the war the Medical Department extended its aid in obtaining for the contractors such supplies as bottles, rubber stoppers, rubber tubing, needles, filters, tin cans, water-proof packing materials, clamps, cartons, and shipping cases.

All processing laboratories were required to maintain complete records on each lot of plasma processed, showing serologies on the blood, cultures, toxicity tests, bulk sterility tests, time required for processing, time required and sterility changes during the drying cycle, and final sterility and residual moisture determinations on the dried product. In addition to the tests made by each laboratory, a further test was made by the Army Medical Center. One package out of every 5,000 packages delivered (and, later, one package a month from the deliveries made by each laboratory) was selected at random and was subjected to exhaustive tests. The results of these tests were made available to the processors, the purchasing office, and the receiving depots. In spite of these tests, unsatisfactory lots of blood plasma were occasionally shipped and were not detected until reactions were manifested when the plasma was administered. Upon such occasions, the purchasing office was notified by the using installations. Instructions were then sent to all depots and to medical officers in the field, authorizing the destruction or return of the unsatisfactory lots.

Until August 1943 all plasma was packed in 250 cc. units. In that month, the 500 cc. unit was first delivered, and by the end of the war it had supplanted the smaller package to a great extent. Statistics are not available for the production of plasma in 1941, except for December 1941, when 6,557 small units were shipped. During 1942, 1943 and 1944, the monthly production rose steadily. In January 1942, 14,570 units were delivered; this had increased to 74,862 in July and to 161,110 in December. In July 1943 a total of 243,716 units were delivered. Pro-

~~RESTRICTED~~

RESTRICTED

duction was retarded somewhat by the change to the 500 cc. unit; but by September new gains were made, when 120,868 small units and 74,160 large units were shipped. Up to this point, production had lagged behind estimated requirements. But from the fall of 1943 until the end of the war, requirements were somewhat smaller than actual production and were considerably smaller than the production capacity which had been built up. Although, the blood plasma program was begun in 1942 with the modest hope of producing 700,000 small (250 cc.) units, a grand total of 3,070,806 small units and 3,115,877 large (500 cc.) units was produced by August 1945.²⁵

The prices charged by the processors varied widely during the war period, but as production increased the cost per unit declined.²⁶ In January 1942 the average price was approximately \$6.75 per 250 cc. unit. By January 1943 this had declined to approximately \$4.00, and it dropped still lower in subsequent months. A similar price decline appeared in the 500 cc. unit, so that by the end of the war this large package was being procured at a price lower than that paid for the small package at the opening of the conflict.²⁷

Surgical Instruments

No problem in medical supplies had caused the pre-war planners more concern than the procurement of surgical instruments. From 1922 until procurement planning faded insensibly into war-time procurement in 1941, it had been clearly realized that the great quantities of surgical instruments needed could be obtained only with marked difficulty. The main outlines of the problem, as indicated earlier in this monograph,²⁸ were deceptively simple. Prior to 1939, approximately 85 percent of all surgical instruments had been imported from abroad, mainly from Germany. When the British blockade cut off German experts in September 1939, civilian and military users of surgical instruments were forced to turn to the manufacturing resources of the United States, which were equipped to supply only 15 percent of the normal peace-time demand. If this country had remained at peace and had made no preparations for war, the situation would have been serious. It so happened, however, that the very event which stopped the importation of surgical instruments--the outbreak of the war in Europe--led to an increase in our armed forces and to an augmented military demand for surgical instruments. The small quantities on hand which were held by importers and dealers soon passed through regular trade channels to ultimate consumers, and within a few months the supply of instruments was critically low.

RESTRICTED

~~RESTRICTED~~

Fortunately, a movement was already afoot, even before the outbreak of the war in Europe, to increase the productive capacity of American surgical instrument manufacturers. A number of American surgeons who were incensed by the Nazis' treatment of the Jews refused to employ German-made instruments and purchased those of American manufacture, despite their higher cost.²⁹ This provided the first real impetus which domestic manufacturers had received since World War I.³⁰ The industry was still further expanded in 1940 and 1941, when the operation of the Selective Service Act increased the size of the Army and thus produced higher requirements for surgical instruments.

Thus, when Japanese bombs at Pearl Harbor plunged the United States into the war, the Medical Department of the Army had already provided itself with expanded facilities. When the fighting began, it was known that the Army would be vastly expanded, and that campaigns in Europe and in the Pacific would begin as soon as practicable. The next six months, however, comprised a most hectic period in the Supply Service and one which was not conducive to speedy and orderly procurement procedures. The office was greatly expanded in personnel, but space continued to be so limited that efficient work was nearly impossible. An inadequate and outmoded system of calculating requirements, aggravated by the paucity of "due-in" data, made it difficult to determine the quantities needed.³¹ The Supply Service, therefore, did not authorize any large-scale procurement of surgical instruments until August 1942--more than eight months after the attack on Pearl Harbor.³² The R-300 series, which was the first large requisition, was received by the Medical Section, New York General Depot, in August 1942. This was quickly followed by the LL 5-3 series, also in August, and by the R-600 and the R-600A series in September and October, respectively. The most remarkable thing about these requisitions, aside from their late arrival, was the huge quantities for which they called. Neither the buyers in the purchasing office nor officials of the industry could fathom the need for so many instruments. Although these requisitions were intended to satisfy only the 1943 requirements, the quantities called for, in some patterns, were sufficient for 1943, 1944, 1945, and for a few years to come. In addition, the purchasing office was directed to buy a number of instruments which were obsolete and which had not been manufactured for a decade.

Representatives of surgical instrument manufacturers were called to the purchasing office, and contracts were soon negotiated for the bulk of the requisitions, after changing specifications of some of the obsolete patterns. Although bids were solicited, the main emphasis was placed upon delivery time rather than upon low bids. Low-cost

~~REPRODUCED~~

RESTRICTED

producers were paid less, and high-cost producers were paid more. The renegotiation of contracts was expected to capture excessive profits when high-cost producers over-estimated their expenses. In this manner, all parts of the industry which could produce acceptable surgical instruments were given government contracts. At a later period, a cost analysis on all contracts for more than \$10,000 was required, but in the summer and fall of 1942 this would not have been practicable. During this rush period, the entire program would have been imperiled if cost figures had been demanded. Indeed, as late as October 1944 the country's largest manufacturer of surgical instruments declared that he was still unable to furnish, in advance, reliable cost statistics.

In the meantime, the regular manufacturers of surgical instruments were not relied upon exclusively to satisfy the growing requirements. In accordance with procurement plans, prepared in the 1920's, several silverware manufacturers partially converted their plants to the fabrication of surgical instruments. By the end of 1941, five of these manufacturers had received contracts calling for the production of many thousands of forceps, and during the heavy procurement of 1942 and 1943 additional contracts were negotiated. Difficult problems developed. Experience in manufacturing surgical instruments was, of course, totally lacking. The necessary machine tools were not readily available. Workers did not possess the requisite skills. Through the co-operation of standard instrument manufacturers, these problems were solved. Skilled craftsmen were loaned to the new manufacturers for the purpose of training the workers, supervising production, and establishing assembly-line techniques. In many ways, the standard manufacturers placed their experience and technical resources at the disposal of the erstwhile silverware makers.

The first instruments produced by the new plants did not always meet the specifications, but within a few months the newcomers were manufacturing an acceptable product. By concentrating their energies on a few relatively simple patterns which were needed in great quantities, they ably supplemented the efforts of the regular manufacturers. Without the aid of the silverware manufacturers, the Medical Department could not have satisfied its huge requirements for these items.

The production program, for both the old and the new manufacturers, was not a smooth and untroubled one. To increase output, it was necessary for the factories to install additional machinery, employ and train new workers, and increase the number of work shifts. This expansion came at a time when all the components of production were difficult to obtain, and the preference ratings granted for

RESTRICTED

~~RESTRICTED~~

the manufacture of medical supplies were too low to assure prompt delivery. The A-1-d rating placed the contractors near the end of the waiting line. Not until this rating was valueless was it improved. Then, in 1943, A-1-b and A-1-a ratings were granted to expedite production. Difficulty was experienced, also, when aluminum, copper, and brass were denied the manufacturers of surgical instruments. Specifications were changed, in many instances, so that less critical materials could be used. For example, carbon steel was employed in the hollow handles of instruments instead of brass. Fortunately, the quantities of critical materials needed in surgical instruments were very small, and some of the manufacturers had a sufficient supply on hand.

Manpower problems were not so difficult in 1942, but in 1943 and 1944 they became acute. The contractors increased their labor supply by recruiting a large number of young men. This, in ordinary circumstances, would have been an effective and judicious policy, for the period of training was lengthy and it was thought that young men would be more adaptable and dexterous. The policy of employing young men seems to have been adopted on the unwarranted assumption that they would be automatically exempted from military service. Accordingly, something akin to consternation spread throughout the industry when local boards began the induction of the workers with little regard to claims of occupational deferment. Numerous appeals for aid were transmitted to the Supply Service, requesting that workers be deferred and that those already drafted be placed in the enlisted reserve corps and returned to their jobs. Through contacts with local and appeals boards, purchasing officers were able to obtain a large number of deferments. In addition, the manufacturers were advised to employ men who, because of age or physical defects, were not subject to induction.³³

The lack of an approved line of samples was another obstacle to the rapid completion of the contracts, and was partly responsible for the delivery of sub-standard instruments. Representatives of contractors visited medical depots and searched the open markets in an effort to see the patterns they had engaged to produce. Some of them later reported that they were shown samples of Japanese instruments from World War I. Finally, in the early part of 1944, a sample room was established at the Army Medical Purchasing Office, where a display was maintained of all acceptable patterns. Inadequate specifications constituted another difficulty. For a number of instruments, no specifications had been written; and when specifications were available, they frequently afforded meagre data. In 1944 a program was inaugurated to bring all specifications up to date and to include specific dimensions as well as

~~RESTRICTED~~

~~RESTRICTED~~

drawings.

The foregoing problems delayed production and detracted somewhat from the quality of the finished product, but the tremendous program launched in the fall of 1942 was successfully completed. It is estimated that deliveries of surgical instruments amounted to \$25,000,000 in 1943 and \$15,500,000 in 1944. Some of the patterns were too far below the standard to be acceptable; but in a few cases, instruments were accepted which, although they did not meet the specifications, were satisfactory for their intended purpose. There were a few complaints from the field, but most of these related to instruments which had been produced during World War I.³⁴

By the spring of 1943, there were reasons to believe that the incoming supply of surgical instruments was badly balanced, that many types of forceps, for example, were in "short supply" and that a surplus of other instruments was being piled up. A stock survey was promptly made, which definitely proved that the patterns were ill-balanced. Very drastic "cut-backs" were made in some contracts, and quantities were increased in others. But by the end of September 1944, surpluses were fast disappearing, and additional orders were placed for many items which had been cancelled in 1943.³⁵

Penicillin

No new item of medical supplies attracted as much attention and grew so rapidly in importance as did penicillin. Widely hailed as the "miracle drug" in magazines and newspapers, this curative agent was first used in the Army early in 1943, when small quantities were obtained for experimental purposes. Within a very few months, it was being produced in tremendous quantities and was being made available to Army installations all over the world. In no other drug was the gap between experimentation and widespread use bridged with such amazing speed.

The Army program of penicillin experimentation began at Bushnell General Hospital in April 1943. In June of the same year, studies were commenced at Halloran General Hospital. At this time, however, the supply of penicillin was so meagre that the drug was doled out with the strictest economy in order to ascertain its usefulness, to determine its indications and contra-indications, and to standardize therapeutic procedures associated with its use.³⁶ In the meantime, the first purchases of penicillin were made in May 1943, when two contracts were placed for a total of 1,200 vials, each containing 100,000 Oxford units. These

~~RESTRICTED~~

~~RESTRICTED~~

were special, experimental contracts, for the manufacturing processes were so unsettled at the time and the purity and potency of the product were so uncertain, that the standard contract forms proved to be inapplicable. In July, contracts were placed with seven commercial laboratories, also on an experimental basis. Close contact was maintained with the suppliers, and many types of aid were extended to them while they assembled the plant facilities, materials, and labor required for production. During the summer and early fall of 1943, sufficient quantities of the drug were thus procured to continue the experiments in Army hospitals, to determine its effectiveness, and to supply a small portion of the current needs. This period of experimental manufacture and procurement was invaluable, also, in providing a wealth of experience in production and packaging techniques. By October 1, 1943, the period of experimental purchase ended, and on that date standard Army contracts were awarded to eight contractors.³⁷

This marked the beginning of the real "penicillin program" which engrossed the efforts of many purchasing officers and which was granted the highest priorities accorded to any military item, except the atomic bomb.³⁸ Nearly every piece of equipment needed to expand production was scarce, including stainless steel piping and tanks, centrifuges, vacuum pumps, and refrigeration equipment. Building material for new production was difficult to obtain. The necessary labor, in the "tight labor areas," created serious problems. In these difficulties, the Medical Department rendered all types of effective aid within its power. Quite naturally, however, the most critical problems were those of production, testing, and packaging, and could be solved only by the efforts of the contractors themselves. At first, the "surface culture" method of production was universally employed, but late in 1943 experiments with the "deep vat method" proved successful; and most of the contractors made the changes in equipment necessary to employ this improved technique, which resulted in a far greater production. The problem of packaging was a serious one. Since penicillin was administered by injection, it was necessary to produce and package it under sterile conditions. In the new plants, the walls were constructed of glass, so they could easily be scrubbed with an antiseptic solution. Ultra-violet lamps were used to kill microbes in the atmosphere, for germ-free air was required. The rooms were under a slight pressure, so that sterile air would leak out and contaminated air would not leak in. Finally, all workers in the packaging rooms took many of the precautions that a surgeon takes in the operating room, such as scrub-downs and sterile clothing.³⁹

One of the greatest handicaps in the beginning was

~~RESTRICTED~~

~~RESTRICTED~~

the refusal of the Food and Drug Administration to approve penicillin in rubber-capped vials, for sufficient experience had not accumulated to determine that the product would maintain its potency and sterility in this type of container. For many months, therefore, it was necessary for the manufacturer to package penicillin in sealed glass vials. Early in 1944, the rubber-capped vial was accepted, and it greatly speeded production. Another improvement which came in 1945, and which appreciably lessened packaging problems, was the change to the 200,000 Oxford-unit vial. This vial was the same size and it was sealed in the same manner, but it held twice as much penicillin powder, and thus reduced packaging time and materials by virtually 50 percent.

As the manufacture of penicillin progressed, improvements were made in the product itself. Originally, the product contained less than 20 units per milligram; by 1945, the drug contained nearly 1,000 units per milligram. The absolutely pure product, a white crystalline powder, would contain about 1,666 units per milligram.⁴⁰ Early in 1943, all penicillin was given a "dating period"⁴¹ of three months; later in the year, this period was increased to six; in 1944, it was placed at nine months; and in 1945, seven producers were furnishing penicillin with a dating period of 18 months.⁴² These increased dating periods were a great advantage, for they made packaging problems less acute and they permitted the product to be shipped to distant theaters of war.

The proper distribution of penicillin required that the shortest time possible elapse between the date of manufacture and the date of actual use. It was not practicable, therefore, for the depots and camps to carry stocks of the item. Penicillin was shipped by the manufacturers to the Kansas City Medical Depot, and from there it was given automatic and immediate distribution to the various theaters of operations and to Army hospitals within the United States. The Surgeon General's Penicillin Board was established to divide the drug among the various theaters and zones of the interior installations needing it, and monthly meetings were held for this purpose.

Until May 1945 penicillin production was rigidly controlled and allocated by the War Production Board. Each month, the Medical Department received its allocation, the remainder of the product going to the Navy and to civilian hospitals. In July 1943 the Medical Department received 4,290 vials of penicillin. The quantity each month slowly climbed until it reached 52,729 vials in December 1943. It was in 1944 that real quantity production began. Receipts climbed from 75,700 vials in January to 200,000 in

~~RESTRICTED~~

April, to 1,628,000 in October, and to 1,900,000 in December. Steady, but less spectacular increases, continued during the first three months of 1945, the March receipts being approximately 2 million vials. Approximately the same quantity was received each subsequent month until August, when the end of hostilities led to substantial contract cancellations.⁴³

The price of penicillin steadily declined as the manufacturers learned more about its production and as the economies of mass production were effected. In the first experimental contracts of 1943, the price ranged from \$18.05 to \$20.05 per vial. By January 1944 the average weighted price had dropped to \$6.92, in April to \$3.14, and in June to \$2.50.⁴⁴ The price continued to drop during the following year, until it stood at \$0.60 per vial in June 1945.⁴⁵ During the two-year period from June 1943 to June 1945, there was a reduction in price which approximated 97 percent of the original price--the most remarkable price decline of any item procured by the Medical Department.⁴⁶

Atabrine

So far as medical supplies are concerned, the most important effect of the Japanese assault upon the United Nations was the loss of the Dutch East Indies. With a few sharp military strokes, early in 1942, the Japanese monopolized 90 percent of the world's supply of quinine. Even if the United States had remained at peace, this would have been a serious development, for quinine was used in great quantities to treat malaria in the southern states. Since it was virtually certain that long campaigns would be fought in the most malarious part of the world--the south Pacific--the problem attained grave proportions. Stock-piles of quinine held by the United States and her allies were low, and there was no reasonable hope that they could be appreciably increased. The growing of cinchona trees in South America was promising as a long-range project; but since the process required ten years, it offered no hope of relief from the immediate problem.

A synthetic substitute for quinine, which could be produced soon and in great quantities was vitally needed. Such a drug had been developed by German scientists, and it was with the use of that drug--atabrine--that American soldiers were able to wage successful campaigns against Germany and her allies in the Pacific and in North Africa, Sicily, and Italy. American experience with this drug was not advanced in 1942, but a substantial beginning had been made. In 1931, the Winthrop Chemical Company started the clinical investigation of atabrine in the United States. One year later, the commercial synthesis was begun by a

RESTRICTED

process for which some of the intermediate chemicals had to be imported. Under these circumstances, Winthrop's production, between the years 1933 and 1940, averaged 5 million tablets per year, which was sufficient to satisfy peace-time demands.

In September 1939, the chemical staff of the Winthrop Company initiated a program of research designed to free the United States completely from dependence on foreign sources. The chemists found that a raw material obtainable in the United States could be converted, by two processing steps, into the intermediate which formerly had been imported. At the same time, procedures were developed for synthesizing the side-chain intermediates from domestic materials. All the eight individual steps in the complete atabrine synthesis were perfected on a laboratory scale within a few months. In March 1940 construction was begun on a plant for the production of atabrine from American materials, and in September the first factory batches of intermediates were produced. In the following month, the first atabrine of entirely domestic origin was manufactured. By the end of 1941, the rate of production was 160,000,000 tablets per year. During this year, moreover, additional equipment was installed to increase the capacity to 227,000,000 tablets yearly--a quantity which, at that time, was considered sufficient to treat 15 million cases of malaria.

In the meantime, the Medical Department, the Air Service of the Army, and the National Research Council were experimenting to determine the usefulness and toxicity of atabrine. Although the tests results were very favorable, less than 9 million tablets were purchased for military purposes prior to March 30, 1942. By that time, a stock-pile of approximately 35 million tablets had been accumulated by the Winthrop Company; and the stock-pile was constantly increasing, for production was steadily rising.⁴⁷

During 1942, Army requirements for atabrine increased tremendously, but the expansion of the Winthrop plant enabled that firm to fill all orders. A total of 146,987,300 tablets were procured by the Medical Department during that year. The campaign in the Solomons Islands, which revealed a heavy incidence of malaria, made the Medical Department thoroughly aware of the increased demands for atabrine. Accordingly, an atabrine program was launched in 1943, which dwarfed the production of prior years. The sole patent holder, the Winthrop Chemical Company, was unable to meet the heavy requirements. The War Production Board, which assumed responsibility for the program, made a survey and found six additional sources which could manufacture the two intermediates of the product. The Winthrop Company

RESTRICTED

RESTRICTED

licensed these firms and shared with them its manufacturing knowledge. The principal problem was to obtain an increase in the production of powder which, in a final step, was pressed into tablet form. Some of the new sources produced the complete atabrine powder.⁴⁸ Others manufactured one or both of the intermediates. Still others manufactured one of the intermediates, received the other from another manufacturer, and then combined the two into the complete atabrine powder. In addition to the firms developed by the War Production Board to produce the powder, five plants were given contracts for the manufacture of the tablets. Three of these tablet-makers established units to combine the two intermediates into the complete powder.

From April to June 1943 production increased 60 percent, and by the latter month the program outlined above was well underway. In December 1943 approximately 85 percent of the scheduled capacity was producing with regularity. Early in the following year all projected facilities were operating 100 percent of planned capacity, with the result that all requirements (civilian, military, and Lend Lease) were being fully supplied. Production of atabrine was thus increased from 100,000,000 tablets per month in 1943 to more than 300,000,000 per month in June 1944.⁴⁹ In 1943, a total of 1,758,444,858 tablets were delivered to the Medical Department; this was increased to 2,544,135,000 tablets in 1944.⁵⁰ If necessary, 1944's total could have been far exceeded in 1945, but requirements were so fully met that no increase in production was needed during the remainder of the war.

RESTRICTED

RESTRICTED

NOTES FOR CHAPTER V

- 1 Major General C. R. Reynolds to the Chairman, American Red Cross, March 6, 1939 (Record Room, SGO, 422.-4).
- 2 Quoted in a letter from Mr. DeWitt Smith, ARC, to Colonel James D. Fife, June 18, 1940 (Record Room, SGO, 422.-4).
- 3 Mr. Louis H. Nichols to Mr. George Smith, Director of Purchasing, ARC, April 29, 1940 (Record Room, SGO, 422.-4).
- 4 Major General James C. Magee to Colonel James D. Fife (Retired), ARC, June 20, 1940 (Record Room, SGO, 422.-4).
- 5 Colonel James E. Baylis to The Adjutant General, August 6, 1940 (Record Room, SGO, 442.-4).
- 6 On August 27, 1940. See Lieutenant Colonel F. C. Tyng to the American Red Cross, September 4, 1940 (Record Room, SGO, 442.-4).
- 7 Major C. E. G. Reeves to the Director, Historical Division, SGO, October 23, 1944 (Historical Division, SGO, 080.-1).
- 8 Annual Report of the Liaison Branch, Purchases Division, Supply Service, 1945, pp. 28-29 (Historical Division, SGO, 319.1). Indeed, such a surplus had been build up, that in October 1945 the Medical Department made available for transfer to the Red Cross a total of 140,557,100 sponges. (Major C. E. G. Reeves to the Commanding Officer, AMPO, October 30, 1945 [Historical Division, SGO, 400.12-1].)
- 9 Major Arthur Hornbacher, "Negotiations: Surgical Dressings," pp. 1-2 (Historical Division, SGO, 400.12-1).
- 10 "Extracts from Colonel Shook's Speech," p. 6 (Historical Division, SGO, 381.1).

RESTRICTED
117

~~RESTRICTED~~

11

The British had been confronted with the same problems during World War I, when they developed a khaki bandage for field use. It appears, however, that officers of the Supply Service were unacquainted with the British experience and, therefore, derived no profit from it. The problems confronting the British and the solutions they devised are briefly treated in Major-General Sir W. G. MacPherson, Medical Services General History (in the series, History of the Great War), Vol. I, p. 168 (London: His Majesty's Stationery Office, 1921).

12

Captain Lewis W. Davis, "Development of Field Brown Surgical Dressings," pp. 1-2 (Historical Division, SGO, 400.12-1).

13

Annual Report of Buying Branch No. 2, AMPO, 1945, p. 4 (Historical Division, SGO, 024.-6).

14

The dies were employed to stamp the brass sheeting and sealing strip which protected the dressing and maintained its sterility.

15

Captain E. Standee to the Assistant Secretary of War, March 19, 1937; Major General C. R. Reynolds to the Assistant Secretary of War, October 30, 1937 (Historical Division, SGO, 381.-1).

16

Annual Report of the Army Medical Purchasing Office, 1943, p. 35 (Historical Division, SGO, 024.-6).

17

Lieutenant Colonel F. C. Tyng to The Adjutant General, December 10, 1940 (Record Room, SGO, 400.-1).

18

Lieutenant Colonel C. F. Shook to the Priorities Division, ANMB, February 21, 1941 (Record Room, SGO, 422.-1).

19

Lieutenant Colonel C. F. Shook to Colonel John B. Huggins, March 18, 1941 (Record Room, SGO, 400.12-1); Annual Report of the Supply Service, 1944, p. 7 (Historical Division, SGO, 024.6-10).

~~RESTRICTED~~

RESTRICTED

20

Captain Lewis W. Davis, "Production and Packaging Problems," p. 2 (Historical Division, SGO, 400.12-1).

21

Ibid, pp. 2-3. The inclusion, in 1943, of sulfa drugs in the first aid packet caused some technical difficulties in manufacturing, but they were soon overcome.

22

Annual Report of the Renegotiation Division, SGO, 1944, p. 10 (Historical Division, SGO, 319.1-2).

23

A portion of the dried plasma was supplied to the Navy, and the Navy procured human albumin for the Army.

24

Memorandum to the Control Division, SOE, from the Historical Division, SGO, August 13, 1942, p. 27 (Historical Division, SGO, 319.1-2).

25

Major Arthur Hornbacher, "Blood Plasma," pp. 1-8 (Historical Division, SGO, 400.12-1).

26

The cost survey of 1943 and the renegotiation of contracts with processors helped to lower prices still further. See above, Chapter IV.

27

Major Arthur Hornbacher, "Blood Plasma," pp. 10-12 (Historical Division, SGO, 400.12-1).

28

See Chapter II.

29

During the pre-war period, there was an ad valorem duty of approximately 55 percent on imported surgical instruments. In spite of this duty, importers could still sell foreign instruments at prices below those charged for the American product.

30

Lieutenant Colonel Elmer A. Shea, "History of the Participation of the Surgical Section of Purchasing Branch No. 2, A.M. P.O., in the Medical Department Procurement Program," p. 2 (Historical Division, SGO, 400.12-1). Cited hereafter as Shea, "History of the Surgical Section."

RESTRICTED

RECORDED / 100

31 Recollections of Colonel Paul I. Robinson, conveyed to the author in January 1946.

32 The heaviest buying in World War I came in the period July 1-November 11, 1918--sixteen months after the declaration of war. (Shea, "History of the Surgical Section," p. 3.)

33 Annual Report of the Supply Service, 1943, pp. 17-18 (Historical Division, SGO, 024.6-10).

34 Annual Report of the Army Medical Purchasing Office, 1944, p. 28 (Historical Division, SGO, 024.-6).

35 The foregoing material, unless otherwise noted, is based upon Shea, "History of the Surgical Section," pp. 1-8.

36 Annual Report of The Surgeon General of the Army for the Commanding General, ASF, 1944, pp. 12-13 (Historical Division, SGO, 319.1-2).

37 Annual Report of the Army Medical Purchasing Office, 1943, p. 21 (Historical Division, SGO, 024.-6).

38 Address of Brigadier General Edward Reynolds to Medical Department Officers Assembled at Walter Reed General Hospital, September 19, 1945, p. 14 (Historical Division, SGO, 400.12-1). Cited hereafter as "Brigadier General Edward Reynolds' Address of September 19, 1945."

39 Ibid., p. 15.

40 Ibid., pp. 15-16.

41 Penicillin is a deteriorating drug. The dating period is the length of time during which its use is safe and effective.

42 Major Arthur Hornbacher, "Penicillin Production," p. 4; Annual Report of the Liaison Branch, Purchases Division, Supply Service, pp. 20-21 (Historical Division, SGO, 319.-1).

RESTRICTED

43

Ibid., p. 6.

44

Annual Report of The Surgeon General of the Army for the Commanding General, ASF, 1944, p. 51 (Historical Division, SG0, 319.1-2).

45

The average price was \$1.20 per 200,000 Oxford-unit vial, but for purposes of comparison with earlier prices it is rendered in terms of the 100,000 Oxford-unit vial.

46

Annual Report of Buying Branch No. 1, AMPO, 1945, p. 1 (Historical Division, SG0, 319.-1).

47

Major Arthur Hornbacher, "Production of Atabrine," pp. 6-7 (Historical Division, SG0, 400.12-1).

48

The length and complexity of the manufacturing process is indicated by the fact that 3,000 pounds of chemicals were required to make 100 pounds of atabrine--a ratio of 30 to 1. (Brigadier General Edward Reynolds' Address of September 19, 1945, p. 11.)

49

Annual Report of The Surgeon General of the Army for the Commanding General, ASF, 1944 (Historical Division, SG0, 319.1-2).

50

Major Arthur Hornbacher, "Production of Atabrine," pp. 4-5 (Historical Division, SG0, 400.12-1).

RESTRICTED

~~RESTRICTED~~

CHAPTER VI
THE OPTICAL PROGRAM

Introduction

In the foregoing chapter, the procurement of several "problem items" was discussed. An additional group of these items will be considered in this chapter; and, because procurement and distribution were so intimately related, the problems of distribution will also be included. These items constituted the "optical program" of the Medical Department's Supply Service, a separate branch of which was established to estimate requirements, expedite production, and supervise distribution.

Commercial-Type Spectacles

Although spectacles were furnished to United States soldiers during World War I, the medical supply officers in charge of procurement planning did not anticipate that this service would be necessary in World War II. They were aware of the problem, but not of its size and seriousness. Indeed, it was the official belief of the Office of The Surgeon General, as late as March 1939, that the American Red Cross could be prevailed upon to provide soldiers with any spectacles which might be required. When The Surgeon General informed the Red Cross that its services in furnishing surgical dressings would not be required, he observed that there were a few non-standard supplies for which the Medical Department had made no definite plans and whose procurement "might well be entrusted to the Red Cross." These supplies were occupational therapy equipment, toilet kits, and spectacles.¹ The invitation was not accepted, for the Red Cross had no facilities which could be readily adapted to the task of procuring and distributing spectacles for the Army.² This did not provoke the Medical Department to any effective activity. In May 1940, the problem was briefly considered, but no plans were made and no action was taken. Meanwhile, the size of the Regular Army had been increased; the National Guard was soon called into service; and the Selective Service Act, in the autumn of 1940, began to bring into the Army a large number of erstwhile civilians. But during this entire period, the only provisions for furnishing spectacles to military personnel were contained in AR 40-1705, which authorized the procurement of spectacles only when they were necessary for the correction of visual defects.

~~RESTRICTED~~

~~RESTRICTED~~

resulting from violence suffered in the performance of duty. In all other cases, Army doctors were authorized to make examinations and write prescriptions, but it was the responsibility of the soldier to have the prescription filled at his own expense if he desired spectacles.

However effective this system may have been for Regular Army volunteers who received an exacting physical examination upon enlistment, it was not appropriate for Selective Service inductees, many of whom were accepted with faulty eyesight. This point was made with considerable emphasis in May 1941 by the commanding officer of the Station Hospital at Ft. McClellan, Alabama. He informed The Surgeon General that approximately 75 enlisted men of the 27th Division had broken their spectacles in the performance of military duty and that a majority of those men could not afford to pay for repairs or replacements. An additional number of enlisted men, he continued, had received eye examinations and had been strongly advised to procure spectacles. But a large number of these men could not bear the expense, and thus were unable to perform their duties efficiently.³ It appears that this was the first intimation received by the Office of The Surgeon General that the problem was serious. Shortly after receipt of this letter, the Finance and Supply Division began a study of the issuance and repair of spectacles, and a report was made to The Adjutant General with the recommendation that spectacles be furnished to military personnel. The Adjutant General approved this recommendation and directed The Surgeon General to provide spectacles, repairs, and replacements to all military personnel needing them.⁴ In the meantime, a plan had been developed to obtain spectacles by letting contracts with optical suppliers in each of the nine corps areas. Since this would have involved nine separate contracts with widely separated contractors, some of whom would have been unable to fill the requirements, this plan was abandoned; and a strongly centralized procurement program, presently to be discussed, was adopted.⁵

The first task in establishing the spectacle program was the estimation of requirements. As a means of estimating probable needs, the supply volume of the Medical Department's history of World War I was closely examined. Three pages of the volume were devoted to spectacles, but those pages gave not even the barest hint of the quantities which were required. A search of other records proved equally fruitless. Since a faulty requirements figure was considered to be better than no figure at all, the supply officers "pulled one out of the air." They estimated that 10 percent of military personnel would have defective vision, that one-half of those would enter the Army with their own spectacles, and that the remaining half would have to

~~RESTRICTED~~

be supplied with new spectacles or with replacements during the course of a year.⁶ On this basis, it was estimated that during 1942 a total of 200,000 pairs of spectacles would be required. Each individual requiring spectacles for the efficient performance of his military duties was to receive one pair as soon as possible after induction and a second pair was to be supplied when he embarked for overseas.⁷

After determining requirements and basis of issue, the next step involved the selection of a spectacle frame which would be most suitable for military personnel. Two types of frames were considered: (1) the zylonite flesh-colored frame with padded temples and wire core and (2) the nickel-silver frame with comfort cable temples. After consultation with manufacturers, it was decided that the metal frame would serve all purposes and would be the most satisfactory, for it appeared that the zylonite frame would break easily in extremely cold temperatures and would get out of adjustment in warm climates. A metal frame was selected, therefore, which was composed of 10 percent nickel silver and which had a reinforced bridge constructed to withstand rough usage. Later on, as the program got underway, it was discovered that this frame, in warm climates, corroded easily at those points which came into contact with the skin, in some instances causing discoloration of the skin and dermatitis.⁸ This was corrected by increasing the nickel silver content to 18 percent and by constructing the pad arm, pad arm assembly, endpieces, and cable windings of pure nickel.⁹

The lenses chosen were of high quality, were free of striae, chips, and other defects, and were of the best quality available in wholesale quantities. American Optical Company's "Centex" and Bausch & Lomb Optical Company's "Balcor", or equivalents, were used. Although issue of spectacles, except for bifocal lenses, was confined to these two types of lenses, there were instances where special types were provided, such as corrected curve, special base curve, flat, lenticular, and contact lenses.

When it became known that the Medical Department was launching a large program to supply the troops with spectacles, numerous bids were received from optical companies in all parts of the nation. Only two companies were selected for consideration (American Optical Company and Bausch & Lomb Optical Company), for only those two had dispensing facilities throughout the country. It was decided, because of administrative and fiscal advantages, to make a single contract; and this contract was awarded to the American Optical Company, the low bidder of the two considered.

RESTRICTED
124

~~RESTRICTED~~

Within a few months, it was discovered that the American Optical Company could not supply, in sufficient quantities, either the spectacle frames or the lenses. A prescription contract was then given to the Bausch & Lomb Company, and contracts for spectacle frames were apportioned among nine manufacturers on the basis of their production. These manufacturers constructed the frames and shipped them to the two prescription companies, which then divided them among their branch offices.

The distribution phase of the program was made as simple as possible, but the supplying of large quantities of specially-made, prescription-type articles necessarily involved administrative and fiscal problems. The first step in the process, for zone of interior installations, was the station hospital. Here the soldier's eyes were examined and refracted and the prescription was entered upon M.D. Form No. 130, which was a combination delivery order, contractor's bill, and receiving report. Six copies of this form were forwarded to the nearest branch office of the optical contractors.¹⁰ The branch office filled the prescription and mailed the spectacles to the station hospital, which issued them to the soldier and mailed the receiving report to the Fiscal Division of the Office of The Surgeon General. The contractor's invoice was then audited and sent to the Finance Office for payment.¹¹

This spectacle program was soon beset with many troubles. The original estimate that 10 percent of the troops would have defective vision and that one-half of these would enter the Army with their own spectacles, was a grave and troublesome error. It was discovered that 18 to 20 percent of all military personnel required visual correction and that only a very small portion of these entered the service with sturdy spectacles which would withstand field usage. The need for replacements was scarcely considered in the first estimates, for it was thought that the original requirement figures were large enough to absorb replacements. But the experience of 1942-43 indicated that a replacement factor of 30 percent per annum was necessary.¹²

Requirements were still further increased by the fact that spectacles were being furnished to many individuals who did not need them. A large number of spectacles were issued with plano lenses and with very minor corrections, such as a plus- or minus-.25 in each eye. It was found, in the summer of 1943, that some spectacles were furnished which called for a slight prismatic correction of $\frac{1}{4}$ to $\frac{1}{2}$ diopter. At this time, an Optical Advisory Board, consisting of military and civilian ophthalmologists, was established in the Office of The Surgeon General, and it undertook to restrict the issue of unneeded spectacles by ruling that

~~RESTRICTED~~

~~RESTRICTED~~

spectacles would be issued only to individuals who required a correction of more than one diopter in any meridian of either eye. Within about two months, it was concluded that this basis of issue was faulty. The Board then decided that spectacles should be furnished only to personnel having a visual acuity lower than 20/100 in either eye or to other personnel who, in the opinion of the prescribing officer, required spectacles regardless of their visual acuity. In the latter instance, a certificate of necessity was signed by the medical officer and attached to the delivery order. A survey was soon made which revealed that in 60 percent of the orders certificates of necessity were being used; and it was realized that a heavy administrative burden was being placed upon already over-worked eye clinics. The basis of issue, therefore, was changed again, so that spectacles were furnished to individuals requiring a correction of more than one diopter in the meridian of greatest defect, in either eye, and to other individuals who, in the opinion of the prescribing officer, required visual correction for the efficient performance of military duty. The certificate of necessity, in the latter case, continued to accompany the order.¹³

In the meantime, another change had been made which greatly increased the number of spectacles the optical companies were expected to produce. When the program began, it was directed that one pair of spectacles be issued while the individual was in a training camp, and that the second pair be furnished when he embarked for an overseas station. This created a heavy burden at the staging areas and ports of embarkation. The optical companies were unable to meet the three-day delivery deadline, with the result that a majority of these spectacles were mailed to APO addresses and, in many instances, were never received by those needing them. In an attempt to solve this problem, orders were issued in 1943 directing the issuance of both pairs of spectacles early in the training period. This change resulted in an ultimate improvement in delivery, but its most immediate effect was to deluge the branch offices with far more prescriptions than they could fill.

The original erroneous estimates of requirements, the changes in the basis of issue, and the increased rate of inductions greatly impeded the spectacle program during 1942-43. It had been estimated that 250,000 pairs would be required in 1943. Actually, a total of 2,250,000 pairs were issued.¹⁴ Since it required, on the average, a period of five months to allocate materials, process the frames and lenses, and ship them to branch offices, it is evident that the sudden increase in requirements could not promptly be translated into increased production. The results were soon apparent. Although the contracts stipulated that the spectacles would be delivered not later than three days

~~RESTRICTED~~

~~RESTRICTED~~

after receipt of an order, it was not unusual for deliveries to be delayed as much as three or four months. There were more than a few instances where men completed their training and were shipped overseas before receiving spectacles which had been ordered during basic training. In a great number of other cases, an order was filled and the spectacles were shipped to the station hospital in which the soldier had been examined. In the meantime, however, the soldier had completed his basic training and had been shipped to another camp. After futile efforts to locate him in the camp from which he had departed, the spectacles were sent to his next post, only to arrive after the soldier had departed for a third post. Thus spectacles followed soldiers through many posts in the zone of the interior, and then repeated the process overseas. Some men never received their spectacles. A considerable number had spectacles delivered to them at a place and time so far removed from the eye examination that all memory of the refraction and the prescription had been worn from their minds.¹⁵

Most of the delays noted above were the direct result of requirements outstripping production. But some of the slow deliveries were due to other causes. The Bausch & Lomb Optical Company established 12 shops, strategically located throughout the country, which concentrated their attention exclusively upon military orders. Since the total capacity of these shops exceeded by 10 percent the quantity of spectacles contracted for, slow deliveries were not numerous after requirements had been stabilized. The American Optical Company, on the other hand, depended upon its network of 250 branches and affiliated companies located in the largest cities throughout the country. Each of these branches had a capacity which ranged from 30 to 300 jobs per day; but a portion of this capacity was necessarily devoted to civilian needs, and oftentimes small branches were located near large Army camps. During the early part of the program, an attempt was made to hasten deliveries by the establishment of "farm-out points." When prescriptions received by a branch were in excess of the capacity allocated to military orders, the surplus was reported to the zone headquarters, which farmed-out the work to another branch office. This system was satisfactory, except that a considerable amount of time was consumed in transmitting surplus prescriptions to a zone headquarters and then to another branch. At the insistence of the Medical Department, the procedure was changed so that any overflow of work was immediately and directly farmed-out to the nearest branch office, and the latter delivered the spectacles to the Army installation which placed the orders. This change produced some improvement; but when the war ended, medical supply officers were convinced that the American Optical Company could have given

~~RESTRICTED~~

RESTRICTED

better service if it had emulated the system of Bausch & Lomb.¹⁶

Some of the delays in delivery were caused by the medical installations which performed the eye examinations. They frequently kept prescriptions on hand until a week or ten days had elapsed, and then mailed the accumulated total to the branch office of the optical company. Usually this represented several times the capacity of the branch office, and thus it was impossible for it to allocate its work in such a manner as to provide the three-day service for which the contracts called. A number of letters were written to the Service Command Headquarters of the negligent installations, inspecting officers of The Surgeon General's Office protested vigorously, and crisply-worded directives were issued on the subject.¹⁷ But failure attended all these efforts to persuade the eye clinics to mail their prescriptions every day; when the war ended a large number of them, in quiet defiance of the directives, continued to accumulate the prescriptions and to send them en masse to over-worked branch offices.¹⁸

Even after a pair of spectacles had been delivered, and the soldier was pursuing his training duties with corrected vision, there still remained a serious and troublesome problem--auditing the optical company's invoice and certifying it for payment. At the beginning of the spectacle program, all invoices were forwarded to the Finance Branch, Finance and Supply Service,¹⁹ and there were audited and sent to the Finance Office for payment. This function was soon decentralized to 12 fiscal branch offices throughout the country, and eventually was concentrated in the regional fiscal office at St. Louis. But the auditing of spectacle invoices, wherever it was accomplished, involved a unique problem and a prodigious amount of work. For each pair of spectacles, unless two pairs were ordered for the same individual at the same time, there was a separate invoice which carried an individual price. The uniqueness of the problem lay in the fact that the accuracy of each price had to be determined by interpreting the prescription and by comparing the invoice price with the contract price stipulated for that particular correction. The prodigious amount of work arose from the fact that thousands of these invoices poured in each month. In the original contracts, a price was indicated for almost every conceivable visual correction. Since the ophthalmological profession did not subscribe to the view that prescriptions should be written in a uniform manner, the interpretation and transcription of prescriptions became necessary.

At first, the officers and civilian employees of the

RESTRICTED

~~RESTRICTED~~

Finance Branch, attempted to audit these invoices by following traditional methods. But when the documents had piled up in such quantities that their sheer bulk seriously restricted the amount of space left for typewriters, adding machines, and other office equipment, it became necessary to improvise speedier and more effective procedures. This was accomplished by the adoption of an "assembly-line" method, in which each clerk performed a single auditing function on each invoice and then passed it on to the next clerk. The advantages derived from this division of labor enabled the fiscal officers to make considerable progress in reducing the huge back-log, and the enormous amount of work involved convinced them that invoices for spectacles should be audited in the fiscal branch offices which were established early in 1943. When the work was decentralized to the field offices, the assembly-line method was retained; and, after the auditing of all spectacle invoices was concentrated in St. Louis, a high degree of speed and efficiency was obtained.

Even after these improvements had been made, the optical companies continued to complain that payments were being delayed, sometimes for as long as five or six months after an order had been filled. An investigation revealed that many medical installations retained the order forms²⁰ until a large number had accumulated before they were forwarded to the fiscal branch office. This was caused, in part, by the habit of allowing these order forms to accumulate for weeks, and in some instances for months, before the medical supply officer took a day off to sign the receiving reports. Some improvements was effected by directing the medical supply officers to sign each receiving report on the day the spectacles arrived and by instructing the installations to forward order forms to the fiscal branch offices in groups of 100, and at least once weekly if this number had not been accumulated.

As shown in the foregoing pages, the spectacle program was subject to many delays and troubles. Serious study and preparation began in May 1941, but not until January 1942 were the first spectacles issued.²¹ By June 30, 1942, only 125,000 orders had been processed, but at that time it was well known that the program would be far larger than at first anticipated.²² The peak was reached in 1943, when a total of 2,350,000 pairs of spectacles were ordered, 192,000 having been ordered during July.²³ The fiscal year ending June 30, 1945, was characterized by a sharp drop, for only 850,000 pairs were delivered during that year.²⁴ For the fiscal year ending June 30, 1946, a total of 1,097,500 pairs were contracted for, but cut-backs immediately after the collapse of Japan reduced anticipated purchases to 775,850.²⁵ It is probable that even this figure was reduced before the end of the fiscal year, for the Army was demobilized at a

~~RESTRICTED~~

RESTRICTED

much faster rate than supply officers, in August 1945, anticipated it would be.

No figures are available which show the total cost of the spectacle program, but the prices stipulated in contracts indicate that the spectacles were procured at a moderate cost. The price of the frames, throughout the war years, hovered around \$1 per pair.²⁶ For simple visual corrections, the lenses were procured for as little as 75 cents; for the more complex corrections, the cost rose to as high as \$6.00. Considering all types of corrections, however, it may be stated that the Army procured complete spectacles at an average price of approximately \$2.50 per pair.

Gas Mask Spectacles and Inserts

The visual defects in soldiers which led the Army to furnish commercial-type spectacles made it necessary to provide for spectacles to be worn beneath the gas mask. The most important problem involved in this program was the design of the spectacle frames. The British attacked the problem by producing all-purpose spectacles, which were reported to be practical for ordinary wear and for wear beneath the gas mask. This was a round-eye frame with the end-piece flush against the eye wire and with flat temples. The Germans and Japanese, on the other hand, provided spectacles of the goggle variety which were held to the face by an elastic band going around the head.

In the design of gas mask spectacles for U.S. military personnel, both types were taken into consideration. The German and Japanese type was rejected as unsuitable, for the elastic band forced the bridge of the goggle frame too severely against the nose, causing great discomfort. In addition, this elastic band caused a leakage at the temples. The British type spectacle was finally adopted after changes were made which, it was believed, rendered it suitable for wear beneath the Army gas mask. Some tests were made, and then the spectacles were procured and issued in the manner already described for commercial-type spectacles. At first, it was directed that all individuals requiring visual correction be furnished gas mask spectacles as soon as they moved to a staging area or a port. It was soon discovered, however, that under this basis of issue the requirements were very high; and the period of time for issue was so short, that many men were shipped overseas without the spectacles. Regulations were changed, therefore, providing that only those individuals having a binocular visual acuity of 20/70 or worse would be furnished gas mask spectacles, and these men were to be fitted when their

RESTRICTED

unit was alerted. This allowed a period of four to twelve weeks for prescription and issue, which proved to be quite ample.

A great deal of difficulty was encountered in fitting the spectacles, for the temple was flush against the eye wire and provision was made for a maximum pupillary distance of 66 mm., the largest size being a 40 mm. eye with a 26 mm. bridge. This, in effect, necessitated the angling outward of the temple piece so that broadfaced individuals could be properly fitted and so that the temple piece would not dig into the skin. Close and careful fitting was necessary if the spectacles were to be worn with comfort; indeed, such close fitting was required that the spectacles very easily became unadjusted.

But the gas mask spectacles had another and far more serious defect. When they were worn, the closure of the gas mask was not complete and a leakage at the temples was produced. Why this was not discovered when the spectacles were first tested has not been satisfactorily determined, but it appears obvious that upon the basis of inadequate and misleading tests an unsuitable type of gas mask spectacle was adopted, and at least 100,000 pairs were procured and issued. Not until complaints had been received from the field did the Supply Service, SGO, become aware of this serious defect. Exhaustive tests were then instituted, which proved that the spectacles were entirely unsuitable because they induced discomfort and caused the gas mask to leak. A directive was immediately issued, prohibiting the use of these spectacles with the gas mask and directing that they be employed as an auxiliary pair for ordinary wear.

This development left the United States Army, in 1943, without any type of visual correction to be worn beneath the gas mask. Very promptly, however, the "gas mask insert" (officially designated as the M-1 Gas Mask Eyeglass) was designed and accepted as standard. This consisted of an eye wire supported by three brackets and attached to a frame inserted beneath the gas mask next to the lens. These spectacles were supplied in seven positions, five of which were with a 40 mm. eye wire and two with a 36 mm. eye wire. These positions were intended to allow for the various pupillary distances and for the vertical positioning of the lens to the eye. The two positions with the 36 mm. eye wire were used for individuals with sunken eyes, since the 40 mm. eye wire would have pressed against the nose and eyebrow of these persons. The fitting problems were far more complex than those encountered in commercial-type spectacles. Each individual appeared with his gas mask, and the position he required

RESTRICTED

was then determined. Later in the program this was simplified by the adoption of a plastic guide which was marked with the standard positions.

The basis of issue of the gas mask inserts was the same as that finally adopted for the gas mask spectacles. Military personnel alerted for overseas movement and who had a binocular visual acuity of 20/70 or worse were supplied with the inserts. Procurement requirements were rather moderate--approximately 7 percent of all military personnel with an annual maintenance or replacement factor of 30 percent.

Prescribing and fitting gas mask inserts in zone of interior installations involved no important difficulties, other than those mentioned above, but overseas distribution was far more complicated. By the time the insert was developed (summer of 1943), large numbers of troops were overseas, all of whom had no suitable visual correction for use with the gas mask. Queries were addressed to the various theaters of operations, which in reply sent requirements figures to the Office of The Surgeon General. Stocks of fitting cases, frame inserts, and pre-edged lenses of all conceivable foci were shipped to the theaters, but there were many delays before military personnel overseas were equipped with this type of visual correction. It seems clear that if gas warfare had been employed in 1942 or 1943, uncorrected visual defects would have appreciably weakened American fighting forces.²⁷

Optical Repair Units

For the repair and replacement of commercial-type spectacles and gas mask inserts in overseas installations, the Medical Department developed a number of repair units and, in addition, established a stockpile at the Binghamton Medical Depot, which furnished these units with frames, lenses, and other ophthalmic supplies.

In 1942 the Mobile Optical Repair Unit (Stock No. 93638) was developed. This consisted of edging equipment, miscellaneous optical machinery (without surfacing equipment), a large assortment of lenses, screws, frames, etc. The entire unit was carried in a 2½-ton truck and was designed to be removed easily and operated in a building. Eight of these units were purchased and shipped to overseas installations, but the need was soon felt for a unit which was self-contained and could be operated in the truck body. This led to the development of a second mobile unit (Stock No. 9958900) in which the optical equipment was permanently housed in a 2½-ton truck. The unit was heated, had water and lights, and could be operated

RESTRICTED

RESTRICTED

under all weather conditions. In designing this unit, it was decided that all equipment should be permanently mounted on benches and that these benches should be securely attached to the floor of the body. Later experience suggested, however, that it would have been wiser to make the equipment removable, for occasionally a unit operated far behind the lines and could have done better work in a building.²⁸

A second unit was designed which included the same equipment listed for the mobile unit, except the truck. This was the Base Shop Optical Repair Unit, and was issued to service troops housed in fixed installations.

In addition to these two units, a third was devised in 1943. Called the Portable Optical Repair Unit (Stock No. 9363900), this consisted of two Medical Department chests containing a moderate assortment of lenses and frames, a hand-operated edging machine, a cutter, and miscellaneous optical tools. Experience in the field indicated that this unit did not carry a sufficiently wide range of foci and that the edging machine was difficult to operate. Accordingly, a third chest was recommended for standardization, which would include additional lenses, fronts, temples, and an electric motor to be used with the edging equipment. But before the third chest could be placed in procurement, the war ended and the plan was abandoned.²⁹

When the repair units described above were first distributed to overseas troops, the basis of issue was one mobile unit and two portable units to each medical supply depot.³⁰ The mobile unit, operating with the depot, could perform about 100 jobs a day; and each portable unit, moving with depot sections, furnished optical repairs and replacements to troops in forward areas, its capacity being from 15 to 20 prescription jobs a day. So far as maintaining the efficiency of combat troops was concerned, these units were valuable adjuncts to the medical service. Before they were employed, soldiers who damaged or lost their spectacles were sent far to the rear for replacements. This produced much lost time and a drain upon transportation facilities, and there is reason to believe that many spectacles were deliberately damaged or thrown away by soldiers who were eager to move back from the fighting lines. When mobile and portable units accompanied field armies, repairs and replacements were made in forward positions with a minimum loss of time. Line officers noted with pleasure, but with little astonishment, that the need for spectacle repairs diminished when the repair units began to operate near the fronts.³¹ During the fiscal year ending June 30, 1945, approximately 500,000 pairs of spectacles were repaired or replaced in all

RESTRICTED

RESTRICTED

theaters of operations. This was accomplished by 50 mobile units and 100 portable units.³²

Continuous support from the zone of the interior, in both personnel and supplies, was required to operate the repair facilities overseas. To each mobile unit one officer and six enlisted men were assigned, while two enlisted men operated the portable unit. This skilled personnel was provided by a training school at the St. Louis Medical Depot, where officer and enlisted personnel, having optical experience in civilian life, were given an orientation course and were instructed in the use of Army equipment. The graduates of this six-week course were assigned to medical depot companies, which, in turn, formed a part of field armies.

To supply the optical repair units with stocks of frames, lenses, tools, and equipment, an optical stockpile was established at the Binghamton Medical Depot. This stockpile contained large quantities of lenses, fronts, temples, nosepads, screws, surfacing machines, edgers, lensometers, lens cutters, and other supplies and equipment. The active theaters of operations established stockpiles of their own, maintained by requisitioning from the Binghamton Medical Depot, to supply the needs of the repair units. All requisitions from theaters were first edited by the Supply Service, SGO, and then transmitted to Binghamton. This editing served the two-fold purpose of consolidating issue experience and maintaining control over the distribution of scarce items.³³

The optical repair units in theaters of operations made important contributions in maintaining the efficiency of American troops. Their success can be attributed, mainly, to three factors: (1) their sole task was to repair and replace standard types of spectacles issued by the Army, (2) the units were commanded by personnel who, in civilian life, had managed optical shops, and (3) one individual in each theater was assigned the responsibility of coordinating the activities of all optical repair units in that theater.³⁴

It must be stated, however, that the effectiveness of this phase of the optical program was somewhat reduced by inadequate planning in the theaters and by an unwillingness on the part of line officers to make full use of the repair units. In the North African invasion, for example, four mobile units were sent in with the medical depots, but no provisions were made for a stockpile upon which these units could draw. Consequently, after operating for a short time the units exhausted their supply of certain lenses and other expendables. These shortages were finally eliminated

RESTRICTED

~~RESTRICTED~~

by the receipt of stocks directly from the United States. In some of the Pacific campaigns, during 1943-44, no plans were made for the employment of optical repair units. Whether this was occasioned by the lack of shipping space or by an imperfect acquaintance with the importance of maintaining visual efficiency, the result was the same. Large numbers of men were withdrawn from the lines and became non-effective when they lost or damaged their spectacles. In the plans for subsequent campaigns, optical repair units were included to reduce this loss of fighting power.³⁵

The Artificial Eye Program

In the procurement planning activities of the Medical Department, the war-time need of artificial eyes appears to have been completely overlooked. The subject is mentioned in neither reports nor correspondence until September 1940, when one of the medical supply officers wrote to seven prominent optical companies and requested information. "Are artificial eyes wholly imported?" he asked. "If so, from what country and has there been any bottleneck since the European War began? If artificial eyes are manufactured in the United States, a list of manufacturers would be appreciated in order that contact may be made and stocks on hand determined."

In reply, this medical supply officer was informed that most of the artificial eyes used in the United States were imported from Germany, where they were manufactured by a few families who jealously guarded their trade secrets; that some were imported from Czechoslovakia; and that a few were manufactured in the United States from German materials. At that time, it was becoming very difficult to import either the eyes or the materials, and stocks in certain shades and sizes was being rapidly depleted.³⁶

This frank warning produced a strange effect. Assuming that "stocks in U.S.A. are apparently adequate for any anticipated emergency," procurement officers decided that no further investigation was warranted, and the matter was dropped.³⁷ For a relatively long period of time, this judgment appears to have been sustained by the course of events. One year passed before the United States entered the war; another year elapsed before American troops landed in North Africa; and it was not until 1943 that the demand for artificial eyes exceeded the modest expectations of 1940.

In the meantime, the few individuals who required artificial eyes were sent to the manufacturers and there were fitted with a suitable prosthesis. But in 1943, battle-

~~RESTRICTED~~

RESTRICTED

field casualties increased rapidly; and at the same time, the Army began to induct one-eyed men.³⁸ These developments forced the establishment of an artificial eye program late in 1943. The Medical Department employed an expert artificial eye technician and purchased a large assortment of glass eyes from the country's depleted stocks. Each eye purchased was hand-picked by this technician. The best quality eyes thus obtained were hurriedly shipped to the theaters of operations, where the need was rapidly becoming acute. Each Army hospital in the zone of interior received a quantity of eyes, and the remainder were placed in the optical stockpile at Binghamton. In addition, a number of expert artificial eye-makers were employed to visit Army hospitals and to furnish custom-made artificial eyes to patients who could not be properly fitted with stock eyes.³⁹

These measures proved to be effective for a few months; but, following the Normandy landings, casualties needing artificial eyes threatened to exhaust the available resources. It was becoming clear, also, that glass artificial eyes possessed certain characteristics that rendered them unsatisfactory for military personnel. The glass eye, either stock or custom-made, became discolored and roughened after a period of 18 to 24 months, thus creating a large and continuous replacement problem. In addition, the glass eye was subject to accidental and intentional destruction; and of the latter there appears to have been a considerable amount, especially among the one-eyed inductees. Many of these individuals considered their induction to be unnecessary for the Army and unduly burdensome to themselves. They retaliated by dropping or breaking their glass eyes while inserting or washing them. This led to their hospitalization for a period of several weeks, awaiting the arrival of stock eyes. When the replacements were received, the patients asserted that the new eyes did not fit and that they could not bear the resultant discomfort. Whereupon they were sent to one of the general hospitals, and there waited a period of one or two months while a custom-made eye was prepared for them. Under these circumstances, many individuals were issued three or four artificial eyes during the course of a single year, with a consequent hospitalization period of six or eight months.⁴⁰

Still another disadvantage was attached to the procurement and issue of glass artificial eyes. They were manufactured in the United States by a small number of highly-skilled craftsmen. Under ordinary circumstances, it would have been difficult to recruit and train additional eye-makers, and thus increase production. But the circumstances were not ordinary. The craftsmen who manufactured glass eyes looked upon themselves as the possessors of

RESTRICTED

~~RESTRICTED~~

lucrative trade secrets, which they had no intention of imparting to others. They possessed a monopoly, and they were determined to maintain it. Consequently, the production of this item could not be appreciably increased.

The foregoing disadvantages of the glass eye led the Medical Department to seek a substitute. While on a trip to the European Theater of Operations early in 1944, The Surgeon General learned that Captain Stanley F. Erpf, D.C., and Captain Sidney J. Karash, M.C., had been experimenting with the fabrication of plastic artificial eyes since July 1943. Captain Erpf was soon recalled to the United States and, with two other dental officers,⁴¹ was transferred to the Valley Forge General Hospital (Phoenixville, Pennsylvania) to develop a plastic eye. By the end of September 1944, the developmental process was complete. An acrylic artificial eye was produced which was superior to any type of prosthesis previously used. The iris was more closely duplicated; the fit was more nearly exact; the eye would not break; it could be worn for long periods of time without cleaning; and, most important of all, it could be fabricated from domestic raw materials by technicians of modest training and experience.

The manufacturing process was comparatively simple and required only about 40 man-hours for each eye. After 100 patients had been satisfactorily fitted with the new eye, it was decided that only the plastic artificial eye would be issued in the future. A training program was instituted at the Valley Forge General Hospital; and the co-inventors taught 12 dental officers, who were then ordered to 12 general hospitals strategically located throughout the country. To these general hospitals all patients needing artificial eyes were transferred. As the number of eye casualties increased, additional officers were trained, so that by July 1945 a total of 32 general hospitals had established laboratories for the fabrication of plastic artificial eyes. During the period December 1944 to December 1945, these general hospitals fitted a total of 7,500 patients with the plastic eye.⁴²

In the meantime, the theaters of operations were affected by these developments. As a part of the program in the United States, several dental officers were trained and sent to the Pacific theaters to introduce the new prosthesis. The European Theater of Operations opened its own school and trained dental officers in the fabrication of the eye. These officers were then dispatched to general hospitals in France and Germany, where they produced plastic eyes for battle casualties. No figures are available which show the number of eyes fabricated in overseas installations, but it is known that the speedy production and

~~RESTRICTED~~

~~RESTRICTED~~

fitting of this prosthesis made a significant contribution to the medical service in combat areas.

¹³⁸
~~RESTRICTED~~

~~RESTRICTED~~

NOTES FOR CHAPTER VI

1

Major General C. R. Reynolds, The Surgeon General, to the Chairman, American Red Cross, March 6, 1939 (Record Room, SGO, 422.-4).

2

Stanley W. Rybak, "History of the Optical Program," p. 4 (Historical Division, SGO, 400.16-1). This valuable essay was written by a civilian employee of the Supply Service, SGO, who was engaged in the optical program for three years. Hereafter referred to as Rybak, "Optical Program."

3

Ibid., p. 3.

4

The Surgeon General to The Adjutant General, June 5, 1941 (Record Room, SGO, 413.75-2).

5

Rybak, "Optical Program," p. 5.

6

Recollection of Colonel Paul I. Robinson, M.C., conveyed to the author in September 1944.

7

Director, Historical Division, SGO, to the Control Division, SOS, 13 August 1942, p. 27 (Historical Division, SGO, 319.1-2); Rybak, "Optical Program," p. 15.

8

In a few cases it was necessary to furnish zylonite frames to individuals who were extremely susceptible to dermatitis caused by contact with metal. These requirements, however, were small, and no special provisions were necessary to supply the frames.

9

Rybak, "Optical Program," pp. 8-9.

10

The country was divided into areas, and each of the contractors was granted the business of specified posts. The posts, in turn, were instructed where to send their spectacle orders.

~~RESTRICTED~~

RESTRICTED

11

Rybak, "Optical Program," pp. 12-13.

12

Ibid., pp. 19-20.

13

Ibid., pp. 16-17.

14

Ibid., p. 19.

15

Spectacles which could not be delivered were shipped to the central stockpile at the Binghamton Medical Depot. Their salvage value was very small, for only the fronts and temples could again be utilized. The lenses, which constituted two-thirds of the cost, were scrapped. Only an expensive and elaborate salvage system could have made it possible to use them again.

16

Ibid., pp. 23-24.

17

See par. 15, W.D. Pamphlet No. 8-5, dated June 20, 1944.

18

Rybak, "Optical Program," p. 24.

19

Until July 1, 1942. After that date, the invoices were sent to the Fiscal Division, SGO.

20

The reader will recall that the order form was a combined delivery order, contractor's invoice, and receiving report. The delivery order was signed when the spectacles were prescribed, the contractor's invoice was signed when the spectacles were shipped, and the receiving report was signed when the spectacles arrived at the medical installation which had ordered them. This three-part form and the appropriate contract comprised all the documents needed to audit the account and certify it for payment.

21

Rybak, "Optical Program," p. 10.

22

Director, Historical Division, SGO, to the Control Division, SCS, August 13, 1942, p. 27 (Historical Division, SGO, 319.1-2).

RESTRICTED

~~RESTRICTED~~

23 Rybak, "Optical Program," p. 11.

24 Annual Report of the Optical Section, AMPO, 1945, pp. 1-2 (Historical Division, SGO, 319.-1).

25 Brigadier General Edward Reynolds to the Commanding Officer, AMPO, August 15, 1945 (Historical Division, SGO, 422.-4).

26 This price applied to the metal frames only.

27 The foregoing account of gas mask spectacles and inserts is based upon Rybak, "Optical Program," pp. 27-31. Although it was procured and distributed in large numbers, the gas mask insert was never considered to be more than a fairly satisfactory make-shift. Rybak (p. 29) declared that it was "not the ideal and practical type of item to be supplied." There is no record, however, of any efforts to develop a more satisfactory device. Instead, supply officers of the Medical Department appear to have nursed a hope that the Chemical Warfare Service would ultimately design and adopt a gas mask with which the commercial-type spectacles could be worn. This hope never received any encouragement.

28 Director, Historical Division, SGO, to the Control Division, SOS, August 13, 1942, p. 27 (Historical Division, SGO, 319.1-2); Rybak, "Optical Program," pp. 31-32.

29 Ibid., p. 32.

30 It was soon discovered, however, that this basis of issue produced a waste of optical repair facilities; and in April 1944 a new T/O & E (8-500) provided a mobile unit for each 150,000 troops, to be augmented by one portable unit when the troops were scattered over a large area.

31 The extent to which these units preserved the fighting efficiency of the troops is indicated by a report of optical activities in the ETC during the first half of 1945. The author of that report estimates that it would have been necessary to evacuate approximately 10,000 men per month if on-the-spot repair facilities had not been available. See Lieutenant Colonel James N. Greear, "Semi-

~~RESTRICTED~~

RESTRICTED

Annual Report for Ophthalmology, 1 January 1945 to 30 June 1945, European Theater of Operations," p. 6 (Historical Division, SGO, 319.1-2).

32

Annual Report of the Liaison Branch, Purchases Division, Supply Service, 1945, p. 18 (Historical Division, SGO, 319.-1).

33

Rybäk, "Optical Program," pp. 31-36.

34

The consulting ophthalmologist, on the staff of the theater surgeon, supervised the operations of optical repair units.

35

Rybäk, "Optical Program," pp. 36-37; Major General Norman T. Kirk to Brigadier General James E. Baylis (Surgeon, India-Burma Theater), June 25, 1945 (Historical Division, SGO, 422.-4).

36

Lieutenant Colonel C. F. Shook to the Denver Optic Company, September 24, 1940 (Record Room, SGO, 442.-2).

37

Major Clifford V. Morgan, "Memo for files re: Artificial Eyes," November 4, 1940 (Record Room, SGO, 442.-2).

38

There are no accurate figures on the number of one-eyed inductees, but it has been estimated that they numbered 8,000 to 10,000 men. (Lieutenant Colonel M. E. Randolph, "History of the Artificial Eye Program (Glass and Plastic)," p. 1 (Historical Division, SGO, 442.-2). Cited hereafter as Randolph, "Artificial Eye Program."

39

Annual Report of the Optical Section, AMFC, 1945, pp. 4-6 (Historical Division, SGO, 319.-1).

40

Randolph, "Artificial Eye Program," pp. 2-3. (There was no direct evidence which proved that the glass eyes were intentionally broken; but the widespread incidence of breakage, so much higher than in civilian life, and the resentful attitude of these men produced the moral certainty that many of these alleged accidents were, in reality, intentional acts.)

~~RESTRICTED~~

41 Major Victor H. Dietz and Major Milton S. Wirtz.

42

Randolph, "Artificial Eye Program," pp. 3-4. (For additional information, see "Plastic Artificial Eye Program," Valley Forge General Hospital, 1945; War Department Circular No. 398, 1944).

~~RESTRICTED~~

143
17238

RESTRICTED

CHAPTER VII

PACKING AND PACKAGING PROBLEMS

Planning officers of the Medical Department, during the 1920's and 1930's, anticipated and provided for many problems which developed in World War II. One important problem, however, seems to have been completely overlooked: the difficulty of packaging medical supplies and packing them for export in time of war. Neither in procurement planning nor in any other planning activities was attention devoted to this problem.¹ Consequently, when the United States entered the war and began to ship great quantities of medical supplies to overseas theaters, no preparations had been made to meet the packing problems which soon developed. The sturdy wooden boxes, which had been used in peace-time, became almost unavailable when acute lumber shortages appeared. Packing specifications continued to call for containers designed "in accordance with good commercial practices" or provided that the supplies "shall be packed in a manner to withstand shipment and reshipment."² But soon after Pearl Harbor, the interpretation of these specifications became more lenient and was adjusted to the growing scarcity of lumber products. In 1942 the customary shipping containers were flimsy, open-slatted crates, thin plywood boxes for heavier items, and corrugated paper cartons and boxes for bottles, textiles, and miscellaneous items.³ No special efforts were made to prevent corrosion, rust, insect damage, or other ill-effects of exposure to dampness, heat, and rough treatment in handling.

The circumstances under which the Medical Department dispatched its supplies to overseas stations had unfortunate effects upon the weak, ill-designed packing materials. Large quantities of supplies were hurriedly assembled at overloaded ports and were stored in the holds of crowded vessels, often by inexperienced and poorly-supervised stevedores. The lack of adequate harbor facilities and the exigencies of amphibious assaults frequently subjected them to sea water when they were unloaded on rafts or were thrown overboard and floated ashore. Once landed, there was no assurance that the supplies would be protected from further inroads of the elements, for covered storage space in the theaters of operations was far from sufficient.

It must be remembered [one inspecting officer reported] that about 50% of all storage [in the Southwest Pacific Theater] is outdoors where the equipment is subjected to dirt, dust, heat of the tropic sun, and the coolness of the nights. Even where depots have facilities for interior storage, the sides of the buildings

RESTRICTED

~~RESTRICTED~~

are open, thus subjecting the supplies to the above difficulties. One depot in particular, that at Hollandia, was situated on the side of a hill and the water was allowed to run down and wash underneath and around the supplies. It is usually impossible to obtain dunnage; therefore, the bottom box of each stack is directly on the ground, soon becoming unusable. In most instances, there is an insufficient number of tarpaulins to cover all the supplies which are stored outdoors, in which instances all the boxes are subject to the direct weather conditions. Other depots, such as that at Biak, are situated on coral ground which is either very dusty when dry or putty-like when wet. The most modern depot was that at Manila where the Medical Department was fortunate enough to obtain an old supply building. However, all the windows were shattered and shell holes had perforated the roof; but, in general, the conditions were the best encountered in the entire Area. Storage at the hospitals was for the most part in tents, always with the supplies directly on the ground. However, a few installations were able to obtain semi-permanent buildings constructed of corrugated-metal roofs with screened side walls. The humidity in the supply tents seemed to be even more excessive than that outdoors where the air was able to circulate freely.⁴

Storage conditions described in the foregoing paragraph existed as late as the spring of 1945 and represented improvements which nearly four years of war experience had suggested; even more unfavorable conditions existed when United States troops first entered the Solomon Islands, New Guinea, and North Africa. Before the supplies reached these primitive storage places, they were subjected to an amount of mistreatment that would have strained to the breaking point even the sturdiest of packing materials.

The supplies seemed to be handled in the roughest manner possible between the ships and the depots [the inspecting officer continued]. The stevedores employed by both Army and civilian authorities, have, of course, no interest in the contents of the boxes.⁵ The main problem is to unload a high tonnage for the record. The cases are literally thrown out of the boats and dumped or rolled into the waiting transportation. When unloading nets are used, the boxes are piled

~~RESTRICTED~~

RESTRICTED

high, squeezed together, dropped with a bang on the receiving platform, then rolled over each other in a topsy-turvy manner out of the net. . . . the actual handling of supplies subjects the contents to rougher treatment than can be described. . . .⁶

These storage and handling conditions which prevailed in the overseas theaters had prompt and disastrous effects upon the shipping containers which the Medical Department used throughout 1942 and a portion of 1943. Early reports received from the Guadalcanal and North African landings revealed tremendous losses in medical supplies and equipment which were caused by unsatisfactory packing. Expensive and badly-needed x-ray machines were rendered useless by a smashed screen or broken tubes; field operating lamps were torn loose from restraining blocks and badly damaged in transit; water, mud, and sand found their way into the poorly packed supplies; labels became unglued, and the identity of many items was lost; heat and moisture penetrated bottles of pills and powders, transforming the contents into an unusable and sticky mass; mildew and dampness closed the circuits of delicate electrical apparatus; insects, with voracious appetites and catholic tastes, attacked containers and frequently made inroads on the supplies themselves. In brief, the medical supplies and equipment were subjected to every type of damage that can be caused by rough treatment and exposure to the elements.⁷

Reports from the South Pacific and from North Africa resulted in prompt action so far as the packing of subsequently purchased supplies was concerned. United States Army Specification No. 100-14A, issued late in 1942, described requirements for all types of containers, both interior and exterior, including waterproof papers and the meagre knowledge then available regarding methods of corrosion prevention. This specification corrected the most obvious and the most serious errors in export packing. During 1943 specifications were issued which eliminated fiberboard cartons as export shipping containers, standardized box construction, reduced the weight of individual boxes, and provided for the general use of waterproof case liners. These improved packing methods were adopted by manufacturers slowly and with great difficulty. By the summer of 1943, however, most of the contracts for later delivery of supplies included packing specifications which reflected Medical Department experience during the preceding 18 months. In 1944 additional and stricter specifications sought to correct packing deficiencies which still existed, particularly in the field of corrosion prevention. Army Service Forces Manual 406, published in December 1943, was instrumental in the development and widespread use of specifications designed to provide for the protection of all types of equipment subject to corrosion. At the Army Medical Bur-

RESTRICTED

~~RESTRICTED~~

Purchasing Office, a Packaging and Packing Section was established. This section, in addition to drafting packing specifications, maintained close contact with the manufacturers and aided in the practical application of the specifications.⁸

The manufacturers of medical supplies encountered many problems in adhering to packing specifications. In the summer of 1943, for example, the lumber shortage became more acute, adversely affecting all packing and forcing resort to substitute materials. V-Board was then adopted as a substitute for wooden boxes and as a successor to corrugated fiberboard of the non-water-resistant type. This provided a waterproof box which was satisfactory when packed with light, closely fitting items such as blood plasma. It was widely used, however, to contain a number of items which could not be safely shipped in such a flimsy box. Consequently, there were numerous reports from overseas, describing unsatisfactory results obtained with V-Board — crushed, torn, and perforated boxes, which caused the ruin of valuable supplies. Finally, in the spring of 1945, V-Board was abandoned by the Medical Department, except for a restricted group of items.⁹

Serious shortages were encountered in many other types of packing materials, including steel strapping, staples, strapping equipment, waterproof case liners, waterproof cement, cellophane bags, chipboard, and foil barrier materials. Some of these shortages were caused by ineptly worded specifications, which might have been promptly corrected, but most were caused by scarcities in basic materials and manpower. On many occasions, the Medical Department hastened the completion of a contract by using its influence to obtain higher preference ratings for the required packing materials.¹⁰

The packing problems that vexed the manufacturers were numerous and serious, but the main burden fell upon the medical depots of the continental United States. Satisfactory packing specifications were not included in purchase contracts until after the North African invasion, and it was late in 1943 before any appreciable quantity of supplies, in improved export packing, entered the depots. In the meantime, the heavy procurement initiated in 1942 flooded the medical depots with great quantities of supplies which were packaged and packed in accordance with the early, discredited standards. From about January 1943 until the end of the war, the depots were faced with the almost Herculean task of repacking these supplies in such a manner that they would survive the rough treatment and exposure of overseas conditions. If supply officers in the depots had been provided with adequate specifications of overseas packing, the job would have been an imposing one. At this time, however, very little was known about export packing, except that methods then employed were utterly

~~RESTRICTED~~

RESTRICTED

inadequate. It was necessary, therefore, for the depots to resort to experimentation and improvisation in their attacks upon the enormous backlogs of commercially packed supplies and equipment. The two problems which appeared to be the most serious and immediate were the breakage in overseas shipments and damage by water, and to the solution of these problems supply officers in the depots applied themselves. Considerable progress was made in solving the breakage problem by the adoption of one or all of the following methods: (1) the construction of sawed-board, nailed, metal-strapped boxes, (2) the use of adequate bracing and blocks in the packing of equipment such as x-ray machines, sterilizers, and operating lamps, (3) placing a maximum load-limit on the contents of shipping containers, and (4) the lavish use of ground cork, excelsior, and other cushioning materials. If these four methods could have been employed to the extent demanded by the circumstances, it is probable that breakage would have been almost entirely eliminated. It must be remembered, however, that the improved packing program was initiated and carried out in the midst of acute shortages of lumber and other packing materials and at a time when the depots would have been seriously over-burdened if they had merely continued the old packing methods. These shortages and the press of work were attacked by preference ratings to the suppliers of packing materials, the employment of additional civilian personnel, and the introduction of assembly-line procedures in the packing rooms.¹¹

In devising methods of waterproof packing, the depots soon made distinguished progress. Waterproof case liners, made of asphalt-base laminated materials, were adopted for all boxes intended for export shipping. The case liner was first arranged in the box; then the supplies were carefully packed in the liner; and, finally, the liner was sealed, and the box was nailed and strapped. This produced a shipping container that admitted no water, even when immersed. But additional precautions were frequently taken. Cement-coated, rust-proof nails were used in the construction of the boxes. Waterproof labels and markings were employed on the exterior. And in the packing of electrical equipment, a vapor-proof barrier and a dessicant included within the package were used to exclude moisture from delicate contact points.¹²

During a large part of the war, both expendable and non-expendable supplies were packed in the manner described above. For expendable supplies, the method was satisfactory. Overseas installations received the boxes and opened them as the supplies were needed. When the tactical situation required a move, only a small quantity of unpacked supplies was on hand. But with non-expendable supplies and equipment, this type of overseas packing was not satisfactory. When mobile hospital installations moved from one location to another, they were

RESTRICTED

~~RESTRICTED~~

faced with the serious problem of repacking their non-expendables; and these hospitals had neither the skilled labor nor the packing materials to provide waterproof containers. It was to meet this need that the Supply Service developed the "amphibious box." About the size of the plain field chest (28" x 16 $\frac{1}{4}$ " x 14 $\frac{1}{2}), the box was constructed of 3/8-inch plywood and bound by sheet steel. Waterproof rubber gaskets at the top and bottom of the box insured a tight closure, and rubber shock gaskets at each corner prevented damage when the box was dropped. The bottom, which was attached by drive clamps, was easily removable for the repair or replacement of the gasket. Highly resistant to breakage, the box, when fully packed, could sustain a drop of fifteen feet without loosening the water-tight gaskets. This container proved to be invaluable in the functional packing of field installations, for supplies and equipment could be quickly repacked when the unit moved. While the unit was in operation, the tops were removed and the boxes stacked on their sides, thus providing tiers of shelves for the storage and issue of supplies. The amphibious box was a relatively expensive item, costing the Medical Department $16.00 each, but its usefulness was so great that more than 72,000 were purchased.¹³$

Soon after heavy overseas shipments began in 1942, it became apparent that one of the most serious problems would be the protection of surgical instruments from corrosion. Numerous reports from theaters of operations called attention to instruments which had corroded to such an extent that they were useless.¹⁴ At first, it was assumed that transportation and storage conditions overseas caused this deterioration in the instruments, and efforts were redoubled to pack them in moistureproof containers; but depot inspections revealed that surgical instruments in stock were imperfectly protected. Moisture in the air, industrial fumes, dirt, and even perspiration traces left by handlers caused corrosion. It was discovered, also, that many box-lock instruments were corroding in the locks, a condition caused by a scale formation.¹⁵

One solution of this corrosion problem involved a thorough processing of the instruments in the following manner: The instruments were placed in a metal basket and lowered into a tank filled with Stoddard Solvent, which removed dirt, grease, and other organic residue. A second tank, filled with the same solvent, provided a rinse. Next, the instruments were immersed in a third tank which was filled with Specialized Solvent, a fingerprint neutralizer. After draining, the instruments were placed in a drying oven, heated by infrared lamps. The dry instruments were removed from the oven, allowed to cool for two or three minutes, and dipped into a preserving tank containing an oil or grease which was especially adapted to the items being processed. Finally, they were sealed in laminated foil bags, and were then ready for

~~RESTRICTED~~

~~RESTRICTED~~

storage, zone of interior issue, or overseas shipment.¹⁶

In 1943, orders were issued to process all surgical, dental, and veterinary instruments. Precise specifications were not furnished, but it was expected that all depots would follow, or adapt to their own needs, the process described above. During the latter part of 1943, reports of depot inspectors showed that these orders were not being obeyed. Although some depots were satisfactorily processing their instruments, others were employing methods of little value, and some had taken no action whatever. Many instruments were devoid even of protective wrapping, and, oblivious of the war, were corroding in the traditional peace-time manner. Despairing of instituting a uniform and satisfactory process in all medical depots, the inspectors recommended that the laboratory of the Army Medical Purchasing Office develop a practical method of deactivating and processing instruments for corrosion resistance, and that all ferrous instruments in depot stocks be consolidated, processed, and repackaged. The recommendation was approved, and one of the laboratory officers of the Army Medical Purchasing Office began to devote a large part of his spare time to research into the causes and prevention of corrosion. His experiments produced the following results:

1. A method by which "frozen" box-lock stainless steel instruments could be restored to usefulness and their corrosion-resisting qualities improved.
2. A modification in the manufacturing process for all stainless steel surgical and dental instruments, which markedly improved their corrosion-resisting properties.
3. A method of treating instruments to remove the causes of corrosion and binding.
4. An electro-chemical processing and packaging method, which protected both carbon steel and stainless steel instruments against corrosion even in the event of failure of the moistureproof barrier.

This electro-chemical process was adopted as standard and was widely employed during the latter part of 1944 and throughout 1945. First, the instruments were thoroughly cleaned and immersed in a light oil. They were then wrapped tightly in a sheet of nearly pure aluminum foil and were packaged in a metal-lined, heat-sealed envelope. This simple process gave adequate protection against all the well known causes of corrosion, and it provided electrolytic protection

~~RESTRICTED~~

RESTRICTED

against the little-known cause of scale formation. Instruments thus processed and packaged were safe from corrosion for extended periods of time and under all conditions. In addition, they were ready for use after the envelope was opened, the foil wrapper removed, and the instruments sterilized. This ended the time-consuming removal of heavy greases, wax, and resin coatings, with which instruments formerly had been protected.¹⁷

Shortly after this process was developed, plans were made to instruct all depots to send their stocks of surgical instruments to the St. Louis and Kansas City medical depots, and these installations were to clean, process, and package the instruments. It was soon discovered, however, that these depots had insufficient personnel to perform the work. Accordingly, a private contractor in St. Louis was engaged. The purchasing office in New York prepared lists of instruments to be processed, grouping them according to patterns. Instructions were then issued to the various Medical Department depots, requiring them to make shipments to the St. Louis depot at approximately 100,000 per week. This depot released the instruments to the contractor on an established schedule; and after the instruments were processed, they were placed in the St. Louis depot stock. This program began in the fall of 1944. By the end of November 1944 approximately 1,250,000 instruments had been processed, and during succeeding months nearly two million more were given this protection against corrosion.¹⁸

Unfortunately, this new process was developed too late to be of great practical benefit in World War II. The heaviest shipments of surgical instruments to overseas installations were made during 1943 and 1944; and, consequently, only small quantities of instruments protected by the new process were sent abroad before the end of the war. There is reason to believe, however, that the aluminum foil package proved to be distinctly superior to earlier types of protection. A Medical Department officer, who inspected the condition of medical supplies in the Southwest Pacific during the period March to April 1945 rendered the following report:

In general, the condition of instruments seen at both the depots and hospitals was satisfactory, but this was only a result of the protection employed for the individual units. The instruments were coated with either petrolatum, paraffin, or a combination of the two. This coating was helpful, but not completely satisfactory, because envelopes were not available. The paraffin chipped off or the petrolatum was exceedingly messy to handle. Many instruments lately received were packaged by the San Francisco

RESTRICTED

Medical Depot in a heat-sealed cellophane bag. This depot should be commended for its foresight in this method of packaging, as the instruments were carefully protected. . . .

Only about 12 cartons of instruments packaged in accordance with Medical Department Tentative Specification 1708A (aluminum foil) were seen at any depot. These were carefully examined because of the interest recently shown in this problem. The instruments were all in absolutely perfect condition and looked as though they had just received their final polish. It is realized that these packs had not been through the tests of extended storage, but the writer is confident that the package will withstand all the hazards of storage for a long period of time.¹⁹

The Medical Department's experience with the protection of surgical instruments clearly demonstrated that the entire packing and packaging program in the depots should be subjected to central control. At the beginning of the war, the depot commanders were allowed to operate without interference in the handling of outgoing shipments. They were completely responsible for all decisions as to applicable methods of processing, packing, and crating. This encouraged ingenuity and local initiative, which produced many important advances in packing technic. Unfortunately, however, this system had the disadvantages usually associated with local independence. Some depot commanders, possessing imagination and energy, applied themselves to the task of adapting their packing methods to war-time conditions; but others were slow to change their methods, even though the need for haste was the theme of all reports received from overseas. Depot inspections could not correct these deficiencies; for when the inspections were made, much of the damage had been done, and poorly-packed supplies were deteriorating in a hundred overseas points.

Packing methods which were developed in the depots, and the advances which research produced, were standardized by the Medical Department for use in all depots. Precise packing specifications were prepared, which described the materials to be used and the methods to be employed in packing the more important and easily-damaged medical items. Manuals were published and directives were issued. Training films were made and were exhibited to the appropriate personnel of all depots. Packing and packaging conferences (at Toledo, St. Louis, and New York) were held, attended by supply officers from the various depots, at which new processes were explained and enthusiasm for better work was generated. In a word, strong and continuous efforts were made to develop and maintain

RESTRICTED

RESTRICTED

an "export consciousness," to instill the belief that supplies must be so packed that they would be usable in combat areas. The extent to which this attitude was built up is indicated by the remark of a depot commander in 1945, who declared that he "would not quibble about spending \$50 to insure the arrival of a single package of blood plasma to the battle front in good condition."²⁰ To enforce the directives and to assess the value of this widespread training program, inspecting officers from ASF Headquarters and from the Supply Service, SGO, made frequent visits to the packing rooms of the depots. These manifold efforts bore a rich harvest. By the spring of 1945, it was reported that the Medical Department had climbed from the bottom rung of the ladder to a place very near the top, in comparison with other technical services, in the protection and packing of supplies.²¹

This judgment, which was rendered by inspecting officials in the zone of the interior, was confirmed by reports from overseas. Supply officers in the Southwest Pacific declared that the supplies received during the period July 1, 1944 to April 1, 1945, showed a "100% improvement" in packing. The waterproof case liners and the nailed wooden boxes were hailed as the most satisfactory packing materials used. The only persistent and important complaints received from this area in 1945 were that fragile items should be more carefully cushioned and that large pieces of equipment with projecting parts should be disassembled before shipment.²²

By the spring of 1945, all the more serious packing and packaging problems had been solved. The early and laborious efforts of the depots, the research and experimentation in the laboratories, and the developments in manufacturers' plants culminated in a series of Joint Army-Navy Packing Specifications which replaced the ASF Manual 406 and a multitude of tentative specifications. The Joint Army-Navy Packaging Board, established in 1945, coordinated the work of subsidiary groups and issued specifications to all branches of the armed forces. The work of the Packaging and Packing Section, Army Medical Purchasing Office, resulted in the preparation of a "Master Preservation Packaging and Packing Listing," which described in detail a processing and method of packing for every item of the Medical Department catalog.²³ If an invasion of Japan had been necessary, the medical supplies thrown upon the shores of that country would have shown the great improvements in packing techniques which had been achieved since the landings on Guadalcanal.

RESTRICTED

RESTRICTED

Notes for Chapter VII

¹A careful examination of reports on planning activities and of appropriate files of the Office of The Surgeon General disclosed no reference to packing and packaging.

²Major Ben D. Pile, "Development of Packaging and Packing in the Medical Department during the Present Emergency" (October 1945), p. 1 (Historical Division, SGO, 400.16). Cited hereafter as Pile, "Development of Packaging and Packing."

³Lieutenant Colonel E. G. Cooper, "Welcome and Explanation of Purpose of Meeting," an address presented at the Processing and Packaging Conference and Exhibit held at the Toledo Medical Depot, January 4-5, 1945, contained in "Record of the Processing and Packaging Conference, Toledo Medical Depot," p. 1 (Historical Division, SGO, 400.16).

⁴Lieutenant Robert K. Odenheimer, "Report of Inspection and Investigation, Medical Department Packing and Packaging, Southwest Pacific Area, March-April, 1945," p. 2 (Historical Division, SGO, 400.16). Cited hereafter as Lieutenant Odenheimer's "Report."

⁵This is not literally true. Many of the stevedores were deeply interested in the boxes which contained medicinal whiskey. They frequently dropped a container until one or more bottles were broken, and then held the box to their lips and drank the whiskey as it trickled forth. Medical depots in the United States adopted a number of subterfuges designed to conceal the identity of boxes containing whiskey, but these efforts to combat the thirst of stevedores were only moderately successful.

⁶Lieutenant Odenheimer's "Report," p. 3.

⁷Pile, "Development of Packaging and Packing," p. 1; "Record of the Processing and Packaging Conference, Toledo Medical Depot," p. 1; Lieutenant Odenheimer's "Report," pp. 8-18.

⁸Pile, "Development of Packaging and Packing," pp. 2-3; Annual Report of the Army Medical Purchasing Office, 1945, p. 5 (Historical Division, SGO, 319.-1).

⁹Supply Service Code Letter XIV-58, dated May 19, 1945. Subject: "Packing and Packaging — Fiberboard Exterior Shipping Containers."

¹⁰Annual Report of the Army Medical Purchasing Office, 1943, p. 37 (Historical Division, SGO, 024.-6).

RESTRICTED

~~RESTRICTED~~

¹¹ See "Record of the Processing and Packaging Conference, Toledo Medical Depot," pp. 1-3.

¹² Memorandum from Captain Paul Lipman to Lieutenant Colonel E. A. Shea, May 31, 1945, included in the Annual Report of the Army Medical Purchasing Office, 1945 (Historical Division, SGO, 319.-1).

¹³ The Bulletin of the U.S. Army Medical Department, October 1945, p. 424.

¹⁴ This appears to have been the first intimation the Medical Department had that stainless steel instruments required special protection against corrosion.

¹⁵ Lieutenant Colonel E. A. Shea, "Surgical Instruments," p. 1 (Historical Division, SGO, 400.16).

¹⁶ "Record of the Processing and Packaging Conference, Toledo Medical Depot," pp. 18-20.

¹⁷ Major Arthur Hornbacher, "Surgical Instruments," pp. 1-3 (Historical Division, SGO, 400.16).

¹⁸ Ibid., pp. 2-3.

¹⁹ Lieutenant Odenheimer's "Report," pp. 11-12.

²⁰ Ibid., p. 3.

²¹ Ibid., p. 3.

²² Lieutenant Odenheimer's "Report," pp. 4-5, 21.

²³ Pile, "Development of Packaging and Packing," pp. 3-4.

~~RESTRICTED~~

RESTRICTED

CHAPTER VIII
THE STORAGE OF MEDICAL SUPPLIES

The functions of storage and distribution are closely linked in many ways. For a large part of the war, they were supervised by a single division of the Supply Service, SGC. Throughout the conflict, they were carried out by the Medical Department's far-flung depot system, whose personnel and facilities were devoted to both duties. But however linked they were, the functions of storage and distribution were essentially different. In the purposes they were intended to accomplish and in the problems encountered, they found little in common. In this monograph, therefore, the two functions will be treated separately, except that in the present chapter the administrative structure and the depot system, applicable to both storage and distribution, will be described. To avoid duplication, this description will not be repeated in the chapters devoted to distribution, although the information is essential to an understanding of that function.

When the United States entered the war, the Finance and Supply Division of the Office of The Surgeon General was divided into three branches: Finance, Supply, and Civilian Personnel. The Supply Branch, in turn, consisted of the Production Planning Subdivision and the Purchase, Storage, and Issue Subdivision. Although this grouping of the three supply functions in a single unit may have been satisfactory in peace-time, the problems of war were too acute for this simple structure. Accordingly, in March 1942, a reorganization established a separate Storage and Issue Division. The administrative structure, in this respect, remained unchanged until June 1944 when a Storage and Maintenance Division was created--a change which finally severed the storage and distribution functions.¹ Meanwhile, in 1943, the supervision of storage functions had been strengthened by two steps: (1) transferring a depot commander to the Washington office and (2) employing the operating manager of a large mail order house to act as a civilian consultant. This enabled the Office of The Surgeon General to systematize and standardize depot operations, promote efficiency, and conserve manpower. A small group of skilled depot officers were assembled as field representatives of the Storage and Maintenance Division to visit the depots and to assist in operational problems.²

The Medical Department's depot facilities had been greatly expanded prior to Pearl Harbor. By September 1940 approximately 1,200,000 square feet of storage space were

RESTRICTED

RESTRICTED

available, of which about one-half was used for current operations and the remainder for the storage of unit assemblies in the War Reserve. During 1941, an enormous expansion occurred. By purchase, construction, and lease, the Medical Department acquired storage facilities in all sections of the United States, so that a total of approximately 5,500,000 square feet was available by December 7, 1941. With the addition of the new branch depots and medical sections in general depots, the depot facilities were as follows when the Japanese struck Pearl Harbor:³

BRANCH DEPOTS

<u>Location</u>	<u>Square Feet (Gross)</u>
St. Louis	1,725,464
Savannah	411,872
Toledo	854,247
Total	<u>2,991,583</u>

MEDICAL SECTIONS IN GENERAL DEPOTS

<u>Location</u>	<u>Square Feet (Gross)</u>
Chicago	576,366
Columbus	264,000
New Cumberland	224,000
New Orleans	7,417
New York	616,000
Ogden	108,000
San Antonio	65,379
San Francisco	462,531
Schenectady	224,000
Total	<u>2,547,693</u>

Expansion of depot space continued after America's entry into the war. A new branch depot was established in Kansas City, Kansas; and medical sections were added in general depots at Seattle, Atlanta, and Richmond, so that in July 1942 the space available amounted to a total of 7,000,000 square feet.⁴ Additional space acquisitions still further increased storage facilities during the next six months, and in July 1943 the peak of 13,000,000 square feet was reached.⁵ From this time until the end of the war, the trend was reversed. Space in depots and medical sections was sharply reduced, and a number of installations were inactivated as the demand for storage area was diminished. Twenty depots and medical sections had been occupied in July 1943. This number dropped to 17 in July 1944 and to 14 in July

RESTRICTED

RESTRICTED

1945. During the same period, the number of square feet occupied fell to 10,348,000 in 1944 and to 9,127,000 in 1945.⁶

Military and civilian personnel employed in the depots showed the same steady climb to the middle of 1943 and a similar reduction after that year. A few months before Pearl Harbor there was less than a score of trained supply officers available for depot operations. This meagre fund of military personnel was supplemented by granting commissions to individuals with appropriate civilian experience, calling to active duty a number who held reserve commissions in the Medical Administrative Corps and the Sanitary Corps, and by training newly-commissioned graduates of the Medical Administrative Corps Officer Candidate Schools. These young officers, directly after receiving their commissions, entered upon a period of supply training which included: (1) a thirty-day course of instruction in general Army supply procedures at the Quartermaster School, Camp Lee, Virginia, (2) a thirty-day course dealing specifically with medical supply at the St. Louis Medical Depot, and (3) a thirty-day tour of duty in any of the medical depots, where actual experience in the problems of medical supply was obtained. In this manner, the number of officers on duty in the depots increased from approximately 125 in December 1941 to 425 in December 1942,⁷ and to 510 in June 1943.⁸

Despite very difficult problems in recruitment, for Medical Department depots were unable to pay the salaries and wages of competing industries, the number of civilian employees increased at an impressive rate. When the United States entered the war, there were approximately 2,600 civilian employees in medical depots.⁹ This number was increased to 5,700 in July 1942 and to 14,000 in July 1943. As in storage space, this was the peak period. Employment declined to 9,400 in July 1944 and to 6,800 in July 1945.¹⁰ It should not be assumed, however, that this decrease in civilian personnel indicated a diminution of activity in the depots. Quite the contrary is true, for the work-load of the depots showed a distinct increase during the latter part of the war.¹¹ This striking conservation of manpower was rendered possible by the decrease in storage space and by the increased use of materials handling equipment, work simplification, and better training and control of employees, all of which will be noted more fully later in this chapter.

By December 1941 only a bare beginning had been made in assigning specialized functions to the various depots of the Medical Department. Indeed, there was a depot system only in a rudimentary sense. The medical sections at New York, San Antonio, and San Francisco, distributed stocks to their respective distribution areas and to ports of embarkation.

RESTRICTED

~~RESTRICTED~~

The same functions were performed by the branch depots at St. Louis and Savannah. The branch depot at Toledo constructed hospital assemblies. The Medical sections at Schenectady, Columbus, and New Cumberland, were utilized for the storage of the War Reserve.¹² This was the full extent to which specialization had proceeded. It was soon discovered, however, that the increased tasks of war-time could not be accomplished within this simple frame-work. One of the earliest difficulties grew out of the scarcity of certain items. Under the pre-war system, stocks of these items were shipped, with a fair degree of impartiality, to all branch depots and medical sections, with the result that each facility received a small quantity and few facilities had sufficient stocks to satisfy their needs. A solution to this problem was developed in 1942 by the establishment of the "key depot system." In each of three geographical areas (eastern, central, and western) a depot was designated to receive stocks of these scarce items. Other depots, when unable to fill a requisition, made "extracts" to the appropriate key depots.¹³

The Medical Department's depot system had taken substantially final form by the summer of 1943. At that time all storage facilities were divided into five types of depots, each situated at a strategic point and each designed to fulfill special requirements. These types were: distribution depots, assembly depots, port filler depots, reserve depots, and Holding and Reconsignment Points. In succeeding chapters the distribution functions of these various depots will be fully treated. At present it is sufficient to say that a depot's type determined, to a great extent, the kinds and quantities of medical items it received, and that its storage functions, also, were similarly affected. There were many changes in the depot system between 1943 and 1945, but most of the changes related to distribution areas and depot missions and, therefore, did not basically alter the system outlined above.¹⁴

Each depot of the Medical Department established an administrative organization which was determined by the depot commander and by local needs. At first there was little uniformity in these organizational structures, but in 1943 the Storage Division, ASF, issued directives requiring each depot to pattern its organization after approved models. From this period, therefore, until the end of the war, all the depots of the Medical Department were organized along fundamentally similar lines. As a bare minimum, each depot established the following divisions: Administration, Transportation, Stock Control, Personnel, and Storage.¹⁵ It is with the Storage Divisions of the depots that we are mainly concerned at present. These divisions were usually composed of Inventory, Storekeeping, and Labor and Equipment Pool Branches, and they required the largest number of military and civilian

~~RESTRICTED~~

supervisors because of the variety of functions for which they were responsible. Receiving and inspection were the first duties of the Storage Division. So far as possible, this Division maintained complete information on future receipts, so that when supplies and equipment were delivered at the depots they could be readily identified, inspected, and accepted. The sources of these receipts were manufacturers, other medical depots, depots of other technical services, and returns from posts and from ports of embarkation.

After "tallying-in" the supplies, the next function was an inspection, two types of which were performed. An inspection of correct quantity and possible damage in transit was made, followed by an examination of the supplies and their packing. In making these inspections, samples were picked at random and then, if acceptable, were repacked by one of the processing sections and sent to stock for issue. Packing was carefully examined to see that it corresponded to specifications and that it was suitable for overseas shipment, if the contract so specified. During the first two years of the war, considerable difficulty was experienced with packing, and great quantities of supplies were repacked by the depots.¹⁶ But during 1944 and 1945, packing specifications were greatly improved, and manufacturers adhered to them much more closely.

In performing inspections to determine the quality of supplies and equipment, the receiving sections of depots proceeded as far as possible with the facilities at hand; but they were unable to make adequate examinations of drugs, chemicals, and biologicals. These were tested by the Army Medical Purchasing Office and by the laboratories of the Food and Drug Administration; and until favorable reports were received, the lots being tested were segregated and withheld from issue.

After the supplies were received and inspected, they were moved to the warehouses and stored, pending shipment to requisitioning agencies. In multi-story depots (such as those at Toledo and St. Louis), this involved a horizontal move to the freight elevators, a vertical move to the proper floor, and another horizontal move to the area in which that lot of supplies was to be stored. In addition, the freight elevators in most multi-story depots were inadequate. It is quite obvious, therefore, that in the initial storage of medical supplies, the multi-story depots operated under a severe handicap. This handicap was seriously aggravated whenever re-warehousing became necessary. But for this problem, there was no ready solution. When the Medical Department carried through its program of depot expansion in 1941 and 1942, nearly all

~~RESTRICTED~~

~~RESTRICTED~~

the storage places available for lease or purchase were multi-story buildings--a consequence of high-cost land in cities. There was no way, therefore, to avoid using this type of storage facility. But in depots constructed by the Army, the economically-operated single-floor warehouse was widely used. Thus in the medical section of the Columbus ASF Depot--a group of single-story warehouses--the storage of medical supplies was economically performed. One horizontal move conveyed the supplies from the receiving platform to the storage area, and another horizontal move conveyed them through the packing section to the shipping platform.

Prior to the war medical supplies were stored, to a great extent, in "item sequence"--that is, all the quantities of each item were stored in one place, and, so far as practicable, all item numbers were stored adjacently and in sequence. This system was similar to that employed in libraries, where the call numbers of the books follow one another in consecutive order. Storage by item sequence was practicable when the rate of receipt and shipment of each class of supplies could be predicted, and when there were no sudden expansions or contractions in the quantities of each class of items. But these favorable conditions ceased to exist in 1942, and they did not return during the conflict. The huge procurement program of 1942 and 1943 resulted in a flood of medical supplies entering an expanding number of depots. The warehouse space formerly occupied by the quantities of a medical item ceased to be sufficient. The item sequence method of storage, therefore, could be maintained only by means of re-warehousing--a task which must be often repeated and one which was attended by great difficulties, especially in multi-story depots. Therefore, most of the depots which were activated in 1941 and 1942 never employed the item sequence method, and those which ante-dated the war were compelled to abandon this method. Under the new system, the location of each medical item was determined by the amount of storage space it required, appropriate storage conditions (such as load limits on floors), and the speed with which the item was used or requisitioned.¹⁷ The experience of the Toledo Medical Depot suggested that fast-moving items, such as beds and mattresses, should be stored on the first floor. Slower-moving items and the bulky hospital equipment and supplies should be placed on the top floors, while surgical dressings, instruments, laboratory equipment, dental equipment, and x-ray equipment should be stored near the packing room.¹⁸

The depots which continued the item sequence method of storage (e.g., the St. Louis Medical Depot until September 1943) had none of the problems usually associated with establishing and maintaining a card locator system. Such a system was unnecessary, for the item numbers of the equip-

~~RESTRICTED~~

RESTRICTED

ment and supplies sufficiently indicated their location. On each floor a stock inventory card for each item was maintained, upon which was entered all receipts and shipments; but the cards did not show the location of the stock warehoused on that floor.¹⁹ When the item sequence method of storage was abandoned, or when a new depot was established which did not employ it, a card locator system was absolutely essential, for only through such a system could the location of the various items be known. At first, in most of the depots, the cards for all items were assembled at one place, so that through an examination of the cards in one centralized unit the selectors could determine the location of the stock on every floor of all the warehouses. This system possessed obvious advantages in the maintenance of the depot's stock records, but it had serious disadvantages in the selection of stock for shipment. Accordingly, in the early summer of 1944, a decentralized stock locator system was established in all the depots. Remaining in effect until the end of the war, this system established a small locator unit on each warehouse floor. A locator card for each item stored on that floor showed: (1) the location, (2) number of original packages, (3) number of units in each original package, and (4) the condition of the packing. This new method increased the efficiency of the stock selectors and, at the same time, provided sufficient information for depot stock records.²⁰

These locator cards indicated the quantities of each item in storage, according to records of receipts and shipments, but the possibilities of errors were so numerous that physical inventories were required. In October 1942 the Office of The Surgeon General directed the medical depots to make a physical inventory of all stock in storage and to reconcile the balances on the stock records with the actual physical count. In addition, this directive required an inventory of each accountable item to be made at least every six months. Thus originated the "cycle inventory" which continued throughout the war and which acted as a continuous corrective of the stock records. A Cycle Inventory Branch was established in each depot, and an inventory schedule was developed which made possible the count of each item every six months. Additional inventories were made upon special request--e.g., when an item reached a zero balance, when an item was declared surplus, or on all "short supply" items. These regular and special inventories occupied the full time of from 5 to 15 civilian employees in each depot, and they provided valuable information for both the storage and the stock control officers.²¹

Another matter, more directly connected with the storage functions of depots, was the lay-out of storage areas in the warehouses. All floors were divided into sections and

~~RESTRICTED~~

designated by letters of the alphabet. The size of the sections was determined by local conditions, area of the floor, location of supporting columns, and the supplies to be stored. These sections, in turn, were divided into bays by the supporting columns, and the bays were numbered consecutively. The number of aisles varied, but all main and cross aisles were ten feet wide; and fire aisles, of lesser width, were maintained along the outside walls. The height to which supplies were stacked was not uniform among the depots or even within a single depot. This height depended upon the load limit of the floor, the location of sprinkler equipment, and the type of supplies stored.²²

At the beginning of the war, the methods employed in storage operations were characterized by a maximum use of human muscle and by a minimum use of mechanical equipment. Materials-handling equipment, during this period, was being used in commercial warehouses, especially by canners; but the small-scale operations of medical depots and the scarce funds available dictated the almost exclusive employment of manual methods. When the heavy procurement program of 1942 and 1943 began to fill the depots with unprecedented quantities of supplies and equipment, the increased work-load rendered materials-handling equipment necessary, and the abundance of funds made its acquisition possible. Fork-lift trucks, tractors, and trailers became standard equipment in the depots for the movement and storage of nearly all supplies. The wide-spread use of this equipment was rendered more practicable by the adoption of a simple but ingenious aid--the wooden pallet.²³ Supplies were unloaded on pallets at the receiving platforms and were then moved by trailers or fork-lift trucks to the inspection area. Still remaining on the pallets, the supplies were tallied-in, inspected, and conveyed to the storage area, where they were stacked by the fork-lift trucks. Previously, each box was handled manually. Under the new system, the fork of the fork-lift truck was inserted into the pallet, and a large number of original boxes were thus moved and stacked by a single operation. The same mechanical methods were used when supplies were withdrawn from storage for shipment to posts and to ports of embarkation.

The advantages derived from the use of materials-handling equipment and pallets were so important and so obvious, that manual methods were reduced to a bare minimum. Stacks in the warehouses could be erected to greater heights, with a consequent saving of space, for the pallets provided secure platforms upon which to store the supplies. The open spaces in the pallets allowed a free circulation of air in the stacks of supplies and thus prevented the damage caused by excessive moisture.²⁴ The speed with which supplies were moved and stored showed a marked improvement. When supplies were unloaded from freight cars and placed on pallets, they

~~RESTRICTED~~

RESTRICTED

received no more manual handling until they were withdrawn for shipment. Fork lifts loaded the supplies on trailers; tractors moved them swiftly to the proper storage area; fork lifts once more assumed their tasks and stacked the supplies. When they were shipped, fork lifts placed them, by the pallet-load, upon trailers, and in this fashion they were moved to the packing and crating room. These mechanical methods produced a tremendous saving in depot personnel; for one worker, operating a fork lift or a tractor, could move and store a quantity of supplies which would have taxed the strength of five manual workers. It may be unrealistic, however, to speak of the labor that was saved. It is quite possible that the depots would have been unable to recruit and train the large number of workers who would have been required if labor-saving methods had not been employed. It may be more accurate, therefore, to assert that materials-handling equipment enabled the depots to perform their heavy tasks, and that without this equipment the tasks could not have been performed.²⁵

During the last 18 months of the war, another factor made important contributions to the efficient operation of Medical Department depots. Early in 1944, a "work measurement system" was installed, which involved a close study of each piece of work performed in a depot. Records were maintained on the methods employed in performing each task and on the amount of time and personnel required. By comparing records of the various depots, supervising officers of The Surgeon General's Office could discover weak spots in the operation of a depot and could point out, with great particularity, the specific tasks which were being inefficiently performed. Better methods which had been devised and adopted by other depots could be introduced wherever they were needed, with a consequent saving in time, personnel, and materials. At regular intervals, the records of the work measurement system were brought to the attention of all depots, so that each could determine its efficiency in comparison with the others. This produced a spirit of competition and rivalry among the depots which still further increased their efficiency.²⁶ One important result of this improvement was a decrease in operating personnel at a time when the work-load of the depots was increasing. In June 1943 a total of 14,101 persons were engaged in depot operations. By July 1944 this was reduced to 9,396, to 7,284 in April 1945, and to 6,768 in May 1945. Although operating personnel decreased by 2,000 during the year ending July 1945, the work-load actually increased. In July 1944 approximately 1,600,000 packages were handled. In April 1945 more than 2 million packages passed through the depots. "Line items" processed increased from 582,000 in July 1944 to 660,000 in March 1945. Tonnage increased from 44,000 in July 1944 to 76,000 in April 1945. When the war ended, each unit of personnel and each

RESTRICTED

RESTRICTED

square feet of space was being used with increasing efficiency in the performance of the Medical Department's storage functions.²⁷

RESTRICTED

RESTRICTED

NOTES FOR CHAPTER VIII

1

For a fuller discussion of these administrative changes, see Chapter III.

2

Lieutenant Colonel R. L. Black to the Director, Historical Division, SGO, November 16, 1944, pp. 5-6 (Historical Division, SGO, 400.24-1).

3

See Chapter II.

4

Annual Report of the Finance and Supply Service, 1942, p. 10 (Historical Division, SGO, 024.6-10).

5

Annual Report of The Surgeon General of the Army for the Commanding General, ASF, 1943, p. 31 (Historical Division, SGO, 319.1-2).

6

Annual Report, Storage and Maintenance Division, Supply Service, SGO, 1945, p. 15 (Historical Division, SGO, 319.-1).

7

"Report on Administrative Developments, Office of The Surgeon General," December 1, 1942, p. 4 (Historical Division, SGO, 319.1-1).

8

Annual Report of the Supply Service, 1943, p. 27 (Historical Division, SGO, 024.6-10).

9

"Report on Administrative Developments, Office of The Surgeon General," December 1, 1942, p. 4 (Historical Division, SGO, 319.1-1).

10

Annual Report of the Finance and Supply Service, 1942, p. 1; Annual Report, Storage and Maintenance Division, 1945, p. 14 (Historical Division, SGO, 319.-1).

11

Ibid., p. 14.

RESTRICTED 166

~~RESTRICTED~~

12

Major Paul I. Robinson to the Assistant Chief of Staff, G-1, December 13, 1941 (Record Room, SGO, 400.24-1).

13

"Report on Administrative Developments, Office of The Surgeon General," December 1, 1942, p. 7 (Historical Division, SGO, 319.1-1).

14

For a detailed chart of the Medical Department depot system, as of September 1, 1944, see the Appendix, Exhibit 6.

15

See the "History and Procedure Manual of the Toledo Medical Depot, 1941-1945," p. 6 (Historical Division, SGO, 400.24-1). Some of the larger depots (e.g., the St. Louis Medical Depot) established additional divisions, including Control and Repair & Utilities.

16

For a fuller discussion of this phase of depot operations, see Chapter VII.

17

"History and Procedure Manual of the Toledo Medical Depot, 1941-1945," p. 12 (Historical Division, SGO, 400.24-1).

18

Ibid., p. 12.

19

"History of the St. Louis Medical Depot, 7 December 1941 through 7 December 1942," p. 90 (Historical Division, SGO, 400.24-1).

20

Ibid., 7 December 1943 -- 7 December 1944, p. 4; "History and Procedure Manual of the Toledo Medical Depot, 1941--1945," p. 12.

21

"Cycle Inventory Branch," pp. 1-2, in ibid..

22

There was no load limit on the floors of the single-story depots; but the floors of the multi-story depots, except the basements, had load limits which restricted the height of stacks.

23

Two main types of pallets were employed--the flat pallet,

~~RESTRICTED~~ 167

RESTRICTED

upon the top of which original packages of uniform size were stored; and the box pallet, which consisted of a crate (one side open) nailed to and resting upon a flat pallet. In this pallet, containers of any size and degree of rigidity could be stored, for the box pallets were stacked on top of one another. In addition, special pallets were devised for the storage of gas cylinders, mattresses, steel drums, and other items whose odd size created difficulties.

24

Before the introduction of pallets, supplies were placed on dunnage. This served to protect them from moisture which accumulated on floors, but had no effect upon moisture within the stack. The pallets prevented the accumulation of this moisture by breaking the stack, at regular intervals, with air passages.

25

The extent to which materials-handling equipment was used is indicated by the fact that, at the St. Louis Medical Depot, the number of fork-lift trucks increased from 7 in 1942 to 29 in 1943 and to 40 in 1944. Pallets, which were not used in 1942, increased to 23,390 in 1943 and to 51,250 in 1944. "History of the St. Louis Medical Depot," 1941 -- 1944 (Historical Division, SGO, 400.24-1); see also "History and Procedure Manual of the Toledo Medical Depot, 1941 -- 1945."

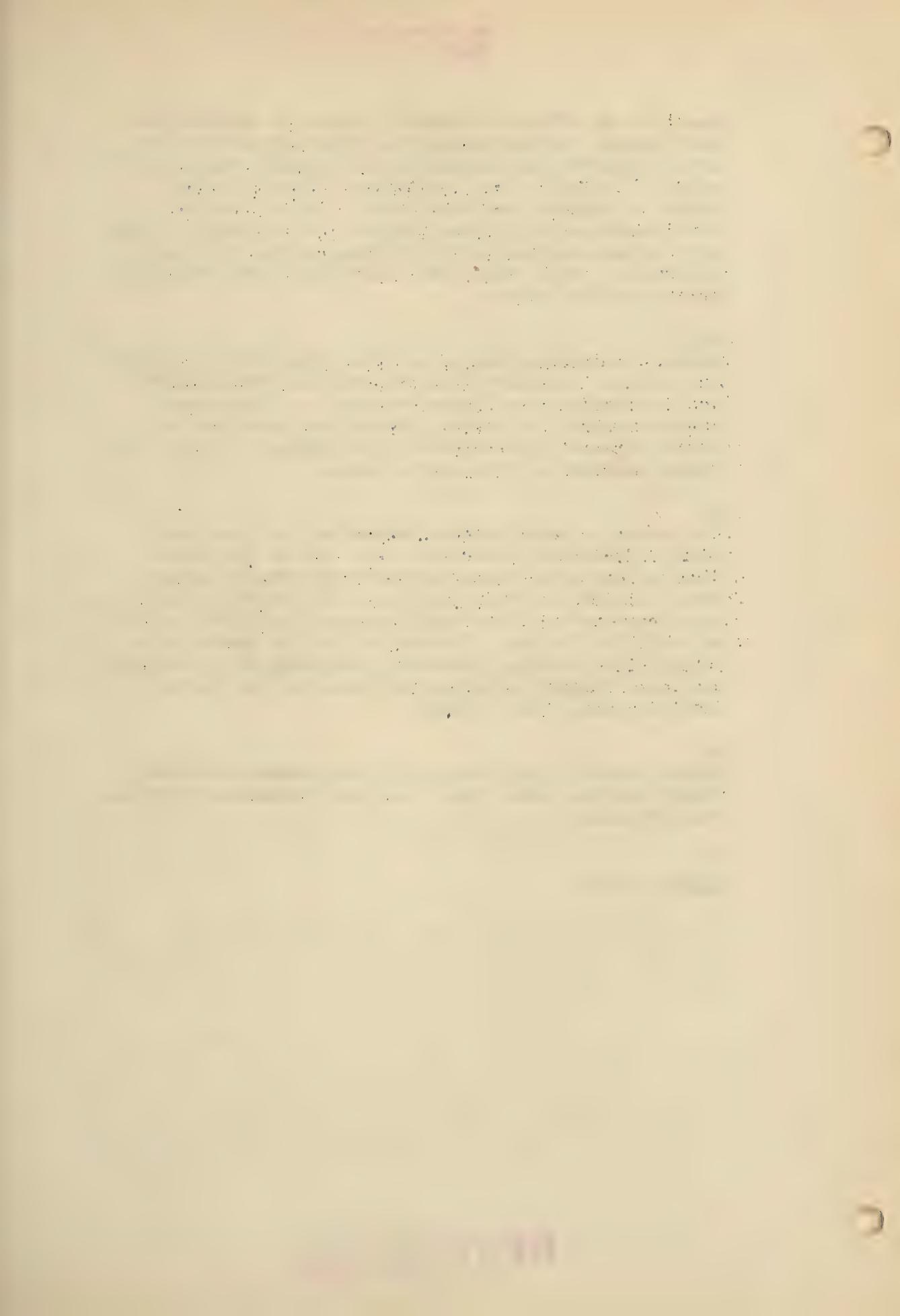
26

Annual Report of the Storage and Maintenance Division, Supply Service, SGO, 1945, pp. 13-14 (Historical Division, SGO, 319.-1).

27

Ibid., p. 14.

RESTRICTED



RESTRICTED

CHAPTER IX

DISTRIBUTION OF MEDICAL SUPPLIES
TO ZONE OF INTERIOR INSTALLATIONS

The depot system of the Medical Department, described in the foregoing chapter, had as its most important function the distribution of medical supplies to camps, posts, and stations within the zone of the interior and to ports of embarkation which supported the overseas commands. In this chapter the domestic phases of this supply function will be considered, and the following chapter will deal with the equipping of tactical units (within the United States) and the supplying of theaters of operations.

The nature of the war which the United States entered in 1941 made it clear that in the zone of the interior two important functions, requiring large quantities of medical supplies, would be performed. It was in this area that approximately 8 million men and women were ushered into the Army and trained for the tasks imposed by war. In every stage of training, from the induction center to the port of embarkation, medical and dental service was available to the American soldier. Dispensaries, infirmaries, station hospitals, regional hospitals, and general hospitals made physical examinations, treated illness, performed operations, and dispensed other medical services demanded by the enormous training program. This great variety of medical care and the large number of troops involved made it inevitable that immense quantities of supplies would be required. Additional supplies were used in the training of medical units. The Medical Replacement Training Camps needed, for instructional purposes, representative samples of medical supplies and equipment. Tactical medical units in training, such as station and general hospitals, required the supplies and equipment peculiar to their missions. Large quantities of supplies were necessary, therefore, to provide medical care for all troops in training and to instruct Medical Department soldiers during their own training programs.

In the zone of the interior, a second function was performed which demanded a profusion of medical supplies. Located within the continental limits of the United States were the named general hospitals, which provided definitive treatment for all American soldiers and especially for those evacuated from theaters of operations. These general hospitals were the fifth and final echelon of medical support; and, as such, they required the most elaborate equipment and a steady stream of supplies.

RESTRICTED

~~RESTRICTED~~

To provide the supplies needed within the zone of the interior, a supply system had been operating smoothly for many years prior to World War II. This system may be divided into three parts: (1) the requisitioning agencies, (2) the editing agencies, and (3) the requisition-filling agencies.

On each post, camp, and station, a Medical Supply Officer was responsible for the receipt, storage, and issue of all medical supplies. Located at the station hospital, the MSO sent periodical requisitions to his distribution depot, stored the supplies as they arrived, and filled the requisitions of the station hospital, dispensaries, and other medical units on the post.¹ Prior to January 1942 all requisitions from posts, camps, and stations² and from general hospitals were first edited by the Corps Area Surgeons, who compared the requisitions with appropriate allowance tables and stock levels. If supplies in excess of the allowances were requisitioned or if non-standard medical equipment was required, the Corps Area Surgeon obtained the approval of The Surgeon General before forwarding the requisition to the distribution depot. The final step in this supply chain was the work of the medical depots which were strategically located in all parts of the United States. Into these depots poured the unprecedented quantities of medical supplies which were procured from American manufacturers. These supplies were inspected and stored in warehouses, and were thus available to fill the requisitions from training camps and general hospitals. Most frequently, the requisitions called for stated quantities of specific medical items; but from hospitals which were being activated, the depots often received requisitions necessitating the prompt shipment of "a 1,000-bed station hospital" or some other unit assembly. This is a reference to the Medical Department's hospital assembly program, which merits a more extended treatment.

Even prior to World War I, the Medical Department had become aware of, and had provided for, a most important problem of its supply system: In the event of war or other emergency, medical supplies are immediately needed.³ In anticipation of such immediate needs, the Department stored its War Reserve in the form of unit assemblies. Under this system, all the supplies and equipment needed to establish a medical unit (whether a 50-bed station hospital or a 1,000-bed general hospital) were assembled, packed together, and clearly labeled. When a call came requiring supplies for a particular medical unit, there was no necessity to expend precious time in procurement, assembly, and packing. The depot simply added the deteriorating items and shipped a unit which had been previously assembled. This plan did not operate as smoothly as procurement planning officers anticipated. The assemblies in the War Reserve were so

~~RESTRICTED~~ 170

RESTRICTED

obsolete that they were of little value when withdrawn for use. The building of new assemblies, after Pearl Harbor, was not an easy task, for there were grave difficulties in the procurement and assembly of Quartermaster, Engineer, and other non-medical items. But the advantages of unit assemblies were so pronounced that their construction and shipment were continued throughout World War II. The assemblies were especially valuable in the activation of station hospitals in zone of the interior posts. As new training camps sprang up all over the country, station hospitals opened with the staccato rapidity of Chinese firecrackers. A large number were commanded and manned by Reserve and AUS officers who were unacquainted with tables of equipment and who were unable to anticipate their supply needs. Time was saved and efficiency was advanced by the system which made it possible for them to requisition a station hospital, a regimental dispensary, or any other appropriate medical unit.

When the preparedness program of the Medical Department was followed by the war program, the depot system was expanded to provide the additional hospital assemblies required in the great mobilization. The St. Louis Medical Depot was given the major responsibility, early in the war, for the construction of assemblies; and until 1943, this depot devoted a large part of its space and personnel to the assembly program.⁴ Assembly depots were also located at Toledo, Ohio (hospitals); Atlanta, Georgia (hospitals); Kansas City, Kansas (kits and chests); and Columbus, Ohio (civilian aid program).⁵

In the construction of a hospital assembly, a considerable amount of "paper work" was required. The basic equipment list, which showed the items and the quantities of each to be included in the assembly, was reproduced in the Electrical Accounting Machine section on punched cards. These cards were then run through the machine to determine whether or not sufficient stock was on hand to construct the assembly. In 1941-42, while the procurement program was getting underway, stock was extremely short. Consequently, the first "run" of the cards usually accounted for only 60 to 70 percent of the items needed. When speed was essential, the assemblies were shipped incomplete, and the receiving agencies were authorized to requisition the missing items at a later time. During this early period, the shortage of "housekeeping" items created an especially difficult problem in zone of the interior medical installations.⁶

After the initial expansion of hospital facilities in the training camps, the pressure for the immediate shipment of assemblies was somewhat reduced, and it became possible

171
RESTRICTED

RESTRICTED

to build more nearly complete assemblies. When the first "run" of the punched cards through the machine showed serious shortages in the items called for by the basic equipment list, the shortage cards were segregated and placed on "back order". New supplies were being constantly received in the depots; and, consequently, it was necessary to make additional "runs" of the shortage cards, at regular intervals, until substantially all the items required were located. At this point, sometimes six months after the work began, the assembly was complete -- on paper. Shipping documents, prepared in the EAM section, were then sent to the hospital assembly section of the packing room, which was responsible for the selection of stock and the packing of all the items included in the assembly. When the unit had been physically constructed, and all the boxes, crates, and bales were labeled, it was either shipped immediately to a zone of the interior installation or a port of embarkation, or it was stored in the depot in anticipation of future demands.

The building of hospital assemblies, during the first two years of the war, was seriously impeded by the scarcity of all types of required supplies. Many medical items were in chronically short supply until the summer of 1943, thus necessitating back orders and extracts to other depots. The delays thus occasioned in constructing the assemblies still further aggravated the scarcities, for supplies which were available when the first EAM "run" was made were obligated for the assemblies, and consequently could not be used for any other purpose. The result was that, for periods as long as six months, scarce supplies lay unused in the depots, because they were being held to build assemblies. The problems caused by the shortages in Quartermaster, Engineer, and other non-medical items were even more serious, for these scarcities were acute and difficult to eliminate. Requisitions to other services were necessary, and these requisitions frequently resulted in an almost interminable process of back orders and extracts. Sometimes the supplies were not placed in procurement until shortages were revealed by the effort to build a unit assembly, and of course a long period elapsed between purchase and receipt. This situation would have been sufficiently troublesome even if the Medical Department had procured the non-medical items, but their procurement was the responsibility of other technical services. Consequently, the Medical Department was dependent upon the other services in the procurement of web equipment, electric motors, mattresses, and other non-medical supplies. Even after the supplies were procured and shipped by the other services, there still remained the problem of combining them with, or "marrying" them to, the medical items in the assemblies. If the assembly was to be shipped complete, this process

RESTRICTED

RESTRICTED

was accomplished at the medical depot; but very frequently, to save time and to prevent cross-hauling, "marrying-up" was performed at the zone of the interior installation which received the assembly or at the port of embarkation to which it was shipped.⁷ Because of shortages in housekeeping and other non-medical supplies, this "marrying-up" process was accompanied by serious and irremediable delays. Assemblies were held for weeks and months, awaiting the arrival of missing items, and many units were shipped incomplete.

As the war progressed and as the assembly program gathered headway, two other problems developed. Packing and storing hospital assemblies, pending requisitions for them, resulted in immobilizing large quantities of medical supplies, many of which were critically needed for current operations in zone of the interior installations. So long as the assemblies were ultimately used, this did not constitute a waste; but it had all the short-term effects of the loss or dissipation of medical supplies. Closely connected was another problem which did produce a sheer waste, although it was one which could not be easily remedied. An assembly would be completed, for example, in March 1943. It was securely packed, labeled, and stored away. Then in April 1943 orders would reach the depot changing the basic equipment list for the assembly or requiring a new type of packing. This made it necessary for depot personnel to remove the assembly from storage, make the changes which had been ordered, and repack it -- work which involved large quantities of packing supplies and many hours of labor. Some of the depots approached a solution to this problem by building only a limited number of assemblies, which were held for emergency requisitions, and by maintaining a sufficient quantity of stock to build any additional assemblies that might be required. When medical supplies became comparatively plentiful, this solution was quite practicable, for a large assembly could be constructed within a period of two weeks.⁸

The building and shipment of hospital assemblies was only one method by which medical supplies were distributed to zone of the interior installations. The other, and more important, method of accomplishing the task was the filling of regular and emergency requisitions which were initiated by the medical supply officers of training camps and general hospitals. Prior to the war, these requisitions were sent to the Corps Area Surgeon, who subjected them to a preliminary editing⁹ and then forwarded them to the distribution depot. But after Pearl Harbor, speed became far more essential; and in February 1942 the medical supply officers began to send their requisitions directly to the distribution depot, which was empowered to approve all

RESTRICTED 173

requisitions, except for controlled items and quantities in excess of authorized allowances. When the depot lacked authority to approve and fill a requisition, it was forwarded to the Supply Service, SGO, and there a final decision was rendered. Many of these requisitions called for quantities in excess of allowances and for non-standard supplies and equipment, but the greater part requested controlled items or pieces of equipment which were not authorized for the hospital served by the post medical supply officer. Such requisitions were referred, by the Supply Service, to the appropriate professional service in the SGO, and the decision of the latter was adopted by the Supply Service and transmitted to the depot.¹⁰ As the war progressed, the number of requisitions forwarded for the approval of the Office of The Surgeon General steadily mounted, and before the end of the conflict the disposition of these requisitions became the most time-consuming duty of the Issue Division, Supply Service.¹¹ This work grew in volume, despite the many efforts to decentralize, so far as possible, all phases of the distribution process. It was quite necessary, however, for the SGO to exert a firm supervision over the issue of controlled items and quantities of supplies in excess of authorized allowances, for only in this manner could procurement and distribution be coordinated.

The depots' work in the distribution of medical supplies may be divided into three parts, as follows: (1) receiving and editing the requisition, (2) accomplishing the preliminary paper work, and (3) selecting, packing, and shipping the supplies. The editing process determined that the items were properly identified, were authorized for the station which had requisitioned them, and were not requested in quantities in excess of the allowances. This was followed by a great quantity of paper work and the employment of International Business Machines, which ascertained whether or not the items were in stock, obligated the stock, and printed shipping tickets. The tickets were transmitted to the issue room and there were assigned to the aisles, where the stock was withdrawn by the selectors and the items called for by the requisition were packed and made ready for shipment. After "tally-outs" and inspection had been accomplished, the papers were transmitted to the transportation department; and the supplies were shipped by parcel post, freight, motor carrier, or air.¹²

A description of the procedure employed in filling requisitions may leave the impression that few difficulties were encountered in this stage of distribution operations. Such an impression, however, would be false. During 1942 and a large part of 1943, the Medical Department was affected by serious, widespread, and chronic shortages. As

RESTRICTED

the chapters on procurement have shown, the supply officers did not anticipate a war of such magnitude. It is quite probable that, even if the immense requirements had been expected, sufficient supplies could not have been procured early enough to avert the shortages. The unpreparedness of industry, the production time-lag, the scarcity of certain raw materials, and the administrative friction of a great buying machine -- all these contributed to delays in placing orders and to delays in the manufacture of medical supplies and their shipment to depots. The simple result was the inability of the depots to fill many of the requisitions they received.¹³ When stock was not available but was due-in from procurement, the requisition was placed on "back order," a procedure which obligated the soon-to-be received supplies to the filling of those requisitions. The number of items on back order, therefore, is some indication of the extent of shortages. In May 1942 approximately 3,700 medical items were on back order at the St. Louis depot, the most important of which were sterilizers, rubber goods, generators, anesthesia apparatus, litters, and x-ray machines. This does not mean that the depot had none of the 3,700 items; it means there was an insufficient supply to fill the requisitions which it had received. By methods presently to be discussed, this large number of back orders was gradually reduced; but it is significant that as late as May 1945 a total of 1,250 items were on back order at this depot.¹⁴

When unable to fill a requisition for supplies which were urgently needed at a post, the depot extracted the requisition to the Office of The Surgeon General. After consulting the consolidated stock report, supply officers in Washington sent the requisition to the depot which, according to the current stock report, had a supply of the required items. In peace-time, when shortages were few and sporadic, this practice had much to commend it. The system became unsatisfactory when America's entrance into the war increased requirements to such an extent that shortages of many items became nation-wide, affecting all depots of the Medical Department. In addition, the consolidated stock report ceased, in 1942, to be an accurate record of stock location, and not until the following year did it once more satisfactorily perform this function. So many requisitions were received and filled, after the depots' "cut-off date" and before the stock report could be compiled, that the report was out of date, for many items, on the day it was printed. But the practice of "extracting" requisitions from one depot to Washington and thence to another depot continued unchanged throughout 1942, with most unhappy results for the posts needing the supplies. Extracts of requisitions moved futilely from one depot to another, via Washington, to a third, fourth, or fifth depot, like

RESTRICTED

RESTRICTED

disembodied spirits seeking a haven of rest. At times, the route of these extracts effortlessly formed itself into a circle; and depot commanders, with half-empty warehouses, passed pieces of paper to one another through the Washington office.

The full remedy for these shortages could be produced only by a sufficient quantity of supplies; but before the procurement program could be expected to make up all deficiencies, partial remedies were developed. The most outstanding and successful of these was the establishment of the "key depot" system late in 1942. The distribution depots were "keyed" to receive, store, and issue certain classes of items which were in short supply. When a depot received a requisition for key items which were not assigned to it, an extract was forwarded to the key depot which stocked the items. Important advantages resulted from this system. During the first six months of 1943, the time required to process requisitions through depots was reduced by 50 percent.¹⁵ Many man-hours were saved by the elimination of fruitless extracts. And, more important, the small stocks of scarce items were less dispersed and their issue was more strictly controlled.¹⁶

The establishment of a more efficient central stock control system produced distinct improvements in the distribution of medical supplies. Early in 1941, the Medical Department began the installation of electric accounting machines in the depots and in the Office of The Surgeon General. The installation of these machines was followed by the establishment of a new system of stock records which, by 1943, was in successful operation. Under this system, each depot submitted periodic reports to the central stock control point, located at first in Washington and later in New York. The principal information carried on these cards, for each item of medical supply, was (1) the quantity on hand, (2) quantity on back order, (3) quantity due in from procurement and transfers, and (4) the quantity issued. The central stock control point sorted the punched cards and printed periodic stock reports, which showed (one item to a page) the information for each depot and a total for all depots. These consolidated stock reports were generally prepared twice a month; but for a time they were compiled weekly, and on some critical items daily teletype reports were submitted. Shortly after VJ-day the period was extended to once a month. The preparation of a consolidated report a few days after the "cut-off date" made possible an efficient system of centralized stock control. Using the consolidated stock report, the Office of The Surgeon General exercised a control over procurement and distribution which was impossible in peace-time. It became

RESTRICTED

RESTRICTED

practicable to compute short-term procurement requirements and to direct shipments from manufacturers to the proper depots. More important for distribution, the central stock control point was able to transfer stock between depots and to send requisitions or extracts to the depots which had the needed stock.¹⁷

Another change which conserved medical supplies affected the types and frequency of requisitions. Throughout 1942, as for many years past, medical supply officers of training camps and general hospitals submitted to their distribution depots three types of requisitions: (1) semi-annual, (2) quarterly (for deteriorating items), and (3) emergency requisitions. Shortly after the attack on Pearl Harbor, "special requisitions" were added. These were distinguished from emergency requisitions by the fact that they were produced by the activation and expansion of training camps, and thus were intended to fill urgent needs which could be anticipated. In January 1943 a thoroughgoing change was made. From that date, all requisitions were submitted monthly and were divided into three new kinds, according to the type of supplies required: (1) standard expendable supplies, (2) standard non-expendable supplies, and (3) non-standard supplies. Special and emergency requisitions were still allowed. In addition, a staggered schedule was arranged by each distribution depot, so that the flow of requisitions from the posts would be evenly spaced over all the days of the month. This was a pronounced improvement over the system which it succeeded. The medical supply officers of the training camps had found it virtually impossible, in that time of rapid expansion, to estimate their requirements for a six-months period. Caution naturally led them to make generous, and sometimes badly inflated, estimates. Thus the already serious shortages of medical supplies had been aggravated by allowing the posts to hold a quantity sufficient for six months. The institution of monthly requisitions was an attempt to get the greatest use possible from the insufficient supplies then available.¹⁸

Although this change in requisitioning procedure produced good results, it became obvious that more heroic measures were necessary. As the number of training camps and general hospitals increased during 1942-43, the quantity of medical supplies held in storage at these posts proportionately increased. And as shortages became more acute, medical supply officers were tempted to hoard against possible future needs. Even under normal circumstances, a large quantity of medical supplies were, from necessity, unavailable for immediate use. The distribution "pipe line" remained full, and a considerable quantity was in storage.

RESTRICTED

RESTRICTED

This meant, specifically, that large amounts of medical supplies were always in transit and that another quantity remained in storage at the factory, medical depot, and the warehouses of the post. It became quite essential, therefore, to reduce these idle supplies to the smallest amount commensurate with efficient operations. Immediate shipment by the manufacturer, elimination of delays in transit, and speedy filling of requisitions submitted to depots offered a partial solution to the problem; but these efforts would be unavailing if supplies were allowed to pile up in the warehouses of some post medical supply officers, while others were unable to obtain their barest needs.

These factors made a tight stock control system absolutely essential to accomplish a fair and economical distribution of medical supplies. For many years, the control of stocks at posts and general hospitals had been inefficiently administered. This was true not only of medical supply, but of all types of supply. Hospitals were allowed to carry a year's stock of non-deteriorating items and a six-month supply of deteriorating items. In addition, no accurate "due-in" records were kept. To determine the quantity of an item due in, a supply officer had to refer to copies of requisitions which he had submitted. As hospitals grew in number and expanded in size, requisitions were submitted with increasing frequency; and as the requisitions multiplied, it became impossible for supply officers to maintain an accurate knowledge of what was on order. In the fall of 1942, therefore, the Office of The Surgeon General devised a new stock record card for posts and general hospitals which showed a stock level for each item, receipts, issues, transfers, stock on hand, and stock due in.¹⁹ (Early in 1943, ASF adopted essentially the same system and published TM 38-220, "Stock Control Manual for Stations.") The stock level, as originally established, was sufficient to care for a post's needs for 60 days, calculated from actual issues made during the previous 90-day period.²⁰ In the spring of 1944, when the demand for supplies in theaters of operations had mounted to unanticipated heights, the level of stock authorized for posts was reduced to a 45-day period. The stock level for non-expendable Medical Department items was reduced to the actual amount of the items on memorandum receipt at the posts, plus the necessary quantity on hand for the replacement of damaged or worn out equipment. At the same time, the Medical Department depots were authorized to maintain a stock level of only 90 days of anticipated issues.²¹ In September 1944 the stock level of depots was reduced to 60 days. This resulted in such a serious increase in out-of-stock items, that in February 1945 medical depots were authorized to return to the 90-day level for

RESTRICTED

~~RESTRICTED~~

expendedable items.²²

The post medical supply officers were expected to abide by the authorized stock levels, to requisition no more than they needed, and to return to the distribution depot any excesses that developed. Each month, they submitted reports to the distribution depot which were supposed to reveal any excess supplies on hand. But the experience of 1942 indicated rather clearly that stock levels must be policed by the distribution depot. Accordingly, in 1943, "Liaison Sections" were established in medical depots and were staffed with personnel who had received training in stock control procedures. These liaison officers made quarterly visits to posts and general hospitals, examined the stocks on hand, and declared excess all supplies above the authorized levels. These supplies were returned to the distribution depot, which then made them available for shipment overseas or to posts which did not have sufficient supplies. At many training camps, the liaison officers discovered tremendous excesses in a great number of items.

The distribution depots had no authority to visit Army Air Forces installations, except upon the written request of the Commanding Officer of a particular installation. Many requests were received, and in December 1943 arrangements were made for routine visits to all AAF installations for the purpose of policing authorized stock levels.²³

By the summer of 1944 liaison officers had reduced the more easily discovered excesses to such a point, that their operations became routine in nature. Time was available, also, for the officers to discuss and offer suggestions on major supply problems which troubled post medical supply officers. It was during this period, moreover, that sub-standard and obsolete surgical instruments were removed from the posts, and the inspection of these instruments became a duty of the liaison officers.²⁴

These efforts to police stock levels were not altogether successful. Medical supply officers of training camps and general hospitals naturally considered that their primary job was to maintain sufficient supplies for their installations. They were prone to hold on to any excesses that developed, for they feared their needs might suddenly expand or that subsequent requisitions might not be filled. If the medical supply officer hoarded his excesses, his immediate superiors were not inclined to censure him. But if he promptly returned all excess stocks and then, at a later period, was unable to supply the needs of his units, his reputation as a prudent and foresighted supply officer

~~RESTRICTED~~

~~RESTRICTED~~

might be impaired. It is certain that the hospital commander, the immediate superior of the medical supply officer, would be impatient of shortages, whatever their cause might be. Nor can it be said that the Service Command Headquarters, which supervised the administration of posts and general hospitals, had an interest in returning excess supplies which matched that of the distribution depot. The Service Command Surgeon wanted the posts under his jurisdiction to have ample supplies; and if they accumulated excesses, in anticipation of future needs, he was inclined to view these evidences of foresight with a benign eye. The Army Air Force Commands, it is scarcely necessary to state, had the same interests and reacted in the same way. Basically and fundamentally, there was a division of power and responsibility and a divergence of interests between the Service Commands and the Medical Department depot system which made it difficult to police the stock levels. These two authorities, it is true, were subject to the same over-all command in the ASF Headquarters; but the actual work of stock control was not done at this high level. It was done in the field, where divided responsibilities and clashing interests were most evident.²⁵

From the viewpoint of post medical supply officers, there were some circumstances which justified them in exceeding authorized stock levels. These levels, it will be recalled, were based upon previous consumption. Yet when there had been no stocks of certain scarce items for many months past, there was no issue experience upon which a stock level could be based. In many other instances, previous issues had been small because the stock was chronically low. The real need for an item, therefore, was not always indicated by the authorized stock level. There were delays in the filling of requisitions, which created shortages at the posts and which (because these shortages reduced issues) led to lower authorized levels in the future.²⁶ In addition, a number of medical supply officers wished to retain excess supplies, for they had good reason to believe that the patient census of their hospitals would soon increase. In the winter of 1944-45, for example, many hospitals operated at less than 50 percent capacity, but they retained large quantities of supplies and equipment which were critically needed elsewhere. The Service Command Surgeons were unwilling to declare any of these supplies as surplus, for they feared a large influx of patients would result from the bitter fighting then in progress in Germany. These fears were well founded. In the late winter and early spring of 1945, zone of the interior hospitals became crowded with overseas casualties.²⁷

Yet the amount of hoarding that existed in zone of the

RESTRICTED

interior installations could neither be completely explained nor fully defended by the factors discussed above. The liaison officers of the distribution depots removed the excesses found in the warehouses of the post medical supply officers; but it became clear, during the last year of the war, that large quantities of excess supplies had been issued to and were being held by hospital pharmacies, operating rooms, and dental clinics. No surpluses appeared on the books of the medical supply officers or in the warehouses; for all practical purposes, the excesses were hidden away in the using installations. Some hospitals held a year's supply of certain scarce items, although the regulations allowed a quantity sufficient to last only 45 days.²⁸ In January and February 1945 approximately 1,250,000 artificial teeth were recovered from dental clinics -- a windfall which, together with quantities already on hand, was estimated to be sufficient for all needs during 1945 and 1946 and made possible the cancellation of several procurement contracts.²⁹ In a survey of general hospitals by the chief of the Issue Division, Supply Service, excessively large quantities of quinine and dental burs were discovered and returned to distribution depots.³⁰ In the summer of 1945, when medical installations began to close all over the country, even larger excesses were unearthed. In one of the general hospitals, an entire year's supply of pentothal sodium was located in the surgical service. This was a scarce item throughout the war, despite the fact that the Supply Service purchased six times as much as the Surgical Consultants Division, SGO, believed could be used in all medical installations.³¹ It is quite obvious, therefore, that this type of hoarding not only created scarcities in less fortunate hospitals, but also led the Medical Department to purchase great quantities of unneeded supplies. Procurement was based upon issues, and purchasing officers were unable to distinguish between issues for hoarding and issues for use.

In an effort to wipe out the scarcities caused by hoarding, inspecting officers visited dental clinics, station hospitals, and general hospitals; but this was a remedy which took effect only after the disease had caused much damage. A revision of TM 38-220 ("Stock Control Manual for Stations") sought to prevent the evil by extending stock control to hospital pharmacies, dental clinics, and other using agencies.³² This, also, came too late, for by the time these new orders were issued (May 1945) Germany had collapsed and the entire world conflict was drawing to a close. It is quite probable that many of the scarcities of medical supplies, which were so serious in 1942-43, were caused not by overall shortages, but by maldistribution of the quantities procured. And the large excesses which were recovered in 1944-45 clearly indicate that hoarding was

RESTRICTED

RESTRICTED

partly responsible for this maldistribution.

The same desire for improvement which provoked a vigorous fight against hoarding manifested itself in all parts of the zone of the interior distribution system. From 1943 until the end of the war, an unremitting effort was made to render the operation of medical depots more efficient and speedy. Training programs for employees, work measurement studies, improved methods of packing and labeling, use of materials-handling equipment -- these were only the most outstanding methods which were employed in the pursuit of efficiency. The results were closely connected with the more speedy distribution of medical supplies to training camps and general hospitals. During 1942-43, a great number of requisitions remained in the depots for a month or six weeks before they were filled; by the early summer of 1944, the usual period required was 10 to 14 days. The increasing abundance of medical supplies during the third year of the war was very influential, but administrative improvements within the depots had a considerable share in producing this result.³³

In the station and general hospitals, the most important agencies which used medical supplies, a noteworthy economy in the use of equipment was obtained through the establishment and operation of the "Central Service System." During 1943 a number of hospitals inaugurated this system, which centralized the storage, care, and issue of supplies and equipment used in certain diagnostic and therapeutic procedures. These items³⁴ were highly specialized and could be used for any patient, but only as the occasion demanded. Their constant presence in each ward was unnecessary and entailed the expenditure of unreasonably large quantities of scarce medical equipment. The establishment of a central agency permitted a greater utilization of the available equipment and also assured better care and longer life to critical materials. This innovation produced such good results during the latter part of 1943, that early in the following year a directive was issued requiring all station hospitals of 750 beds or larger and all named general hospitals to establish the Central Service System.³⁵ It is obvious that the widespread adoption of this procedure relieved the shortages in essential equipment and aided the Supply Service, SGO, in solving its procurement and distribution problems.

Figures are not available which show the total tonnage of medical supplies shipped from the distribution depots to the posts and general hospitals of the zone of interior, but even incomplete statistics reveal that this phase of the supply program was enormous and unprecedented. All the supplies and equipment required to establish and maintain 41,000 hospital beds were shipped during the fiscal year

RESTRICTED

~~RESTRICTED~~

which ended June 30, 1942.³⁶ The number of hospital beds served during the fiscal year 1943 increased to a total of 213,000.³⁷ In the shipment of hospitals and other unit assemblies, the distribution and assembly depots provided a great variety of medical supplies and equipment which were ready for immediate use in establishing and expanding hospital facilities. During the fiscal year 1944, approximately 500 unit assemblies were shipped, including general and station hospitals, expansion units, dental clinics, and hospital train equipment.³⁸ Even during the last year of the war, when training camps were being inactivated, the number of unit assemblies shipped remained at a comparatively high figure -- a total of 439.³⁹

But the foregoing figures can do little more than illustrate an accomplishment which can best be understood if stated in general terms. The depots of the Medical Department provided the supplies used to care for the injuries and illnesses which 8 million soldiers sustained in the training camps of the United States, and these depots made available to the named general hospitals all the medical supplies employed in giving definitive treatment to the thousands of casualties who were evacuated from the battlefields beyond the seas.

~~RESTRICTED~~

~~RESTRICTED~~

NOTES FOR CHAPTER IX

¹ Each named general hospital had a Medical Supply Officer who performed, for his medical unit, the duties of post MSO.

² Hereafter referred to simply as "training camps."

³ For a more extended discussion of this problem, see Chapter I.

⁴ "History of the St. Louis Medical Depot," December 7, 1941 - December 7, 1942, pp. 41-45.

⁵ Annual Report of the Supply Service, SGO, 1943, pp. 23-25 (Historical Division, SGO, 024.6-10).

⁶ Lieutenant Colonel R. L. Black to the Director, Historical Division, SGO, November 16, 1944 (Historical Division, SGO, 319.1-2).

⁷ Some indication of the size of these hospital assemblies is indicated by the fact that it required approximately 2,600 man-hours to build a 1,000-bed general hospital, 1,900 man-hours for a 500-bed station hospital, and 360 man-hours for a 25-bed expansion unit. ("History of the St. Louis Medical Depot," December 7, 1941 - December 7, 1942, p. 44.)

⁸ See "History and Procedure Manual of the Toledo Medical Depot," 1941-1945, p. 13.
In March 1943 the Toledo depot had in storage 142 assemblies, which had been constructed over a period of 18 months. Changes in packing requirements and in equipment lists were so numerous, that each unit had to be re-worked before shipment.

⁹ See TM 38-220 (May, 1945) for a discussion of editing.

¹⁰ Theoretically, the approval or disapproval of these requisitions was based, to a large extent, upon the applicable equipment lists. Difficulties were encountered in the summer of 1944, when the Technical Division began to approve requisitions for items not authorized by the equipment lists. This created shortages in the depots, for procurement had been based upon the assumption that the

~~RESTRICTED~~

RESTRICTED

equipment lists would govern issues. Yet it is probable that the requisitions should have been approved. The equipment lists were not kept up-to-date and were, therefore, an inadequate guide to issues. ("Notes on Supply Service Staff Meetings," September 29, 1944 [Historical Division, SGO, 319.1-27.])

¹¹The growing importance of this task is indicated by the following figures, which show the number of requisitions forwarded to the SGO for approval:

Fiscal year	Requisitions per month
1940	298
1941	409
1942	4,169

¹²This abbreviated statement of the issuing process is based upon "History of the St. Louis Medical Depot," December 7, 1941 - December 7, 1942, pp. 45-46.

¹³During 1943, the St. Louis Medical Depot received a total of 89,049 requisitions. (Ibid., December 7, 1942 - December 7, 1943, p. 156.)

¹⁴"History of the St. Louis Medical Depot," December 7, 1941 - December 7, 1942, p. 40; ibid., December 7, 1944 - May 8, 1945, p. 84.

¹⁵It should be made clear, however, that this reduction in time was not caused altogether by the operation of the key depot system. Many other changes in procedure, discussed in Chapter VIII, helped to produce this result.

¹⁶Annual Report of the Supply Service, SGO, 1943, pp. 21-22 (Historical Division, SGO, 024.6-10). A map showing the distribution depots and their areas as of December 1, 1945, is included in the Appendix, Exhibit 7. A full statement of the missions of all Medical Department supply installations, as of June 6, 1945, is included in the Appendix, Exhibit 8. For distribution areas as of September 1944, see Exhibit 6a.

¹⁷Material supplied informally by Colonel S. B. Hays, Supply Service, May 13, 1946.

¹⁸SGO Control Division, "Report on Administrative Developments, Office of The Surgeon General," December 1, 1942, p. 8 (Historical Division, SGO, 319.1-1). See also "History of the St. Louis Medical Depot," December 7, 1941 - December 7, 1942, pp. 36-38.

RESTRICTED

~~RESTRICTED~~

¹⁹ Ibid., p. 39; material supplied informally by Colonel S. B. Hays, Supply Service, May 13, 1946.

²⁰ Annual Report of the Supply Service, SGO, 1943, p. 23 (Historical Division, SGO, 024.6-10).

²¹ Annual Report of Station Section, Issue Branch, Distribution and Requirements Division, Supply Service, 1944, p. 2 (Historical Division, SGO, 319.1-2); "Notes on Supply Service Staff Meetings," December 14, 1944.

These stock levels, both for posts and depots, were imposed by ASF Headquarters, and were an integral part of the stock level system of purchasing which has been described in Chapter IV.

²² Annual Report of the Stock Control Division, Supply Service, 1945, pp. 1-3, (Historical Division, SGO, 319.1-2).

²³ See "History of the St. Louis Medical Depot," December 7, 1942 - December 7, 1943, p. 186.

²⁴ Ibid., December 7, 1943 - December 7, 1944, pp. 136-137.

²⁵ During October and November 1944, when heavy fighting in Europe caused shortages in the zone of interior, Service Command Surgeons were taking action contradictory to Medical Department policies and were holding on to medical supplies above authorized stock levels. At least a part of this was caused by the failure of the SGO properly to inform the Service Command Surgeons, some of whom were not familiar with Medical Department policies. ("Notes on the Supply Service Staff Meetings," December 5, 1944)

²⁶ See Annual Report of the Station Hospital, Laredo Army Air Field, Texas, 1944, p. 21 (Historical Division, SGO, 319.1-2).

²⁷ "Notes on the Supply Service Meetings," November 28, 1944.

²⁸ Ibid.

²⁹ Ibid., February 23, 1945.

³⁰ Ibid., March 6, 1945.

³¹ Brigadier General Edward Reynolds' Address of September 19, 1945, pp. 5-6.

~~RESTRICTED~~

RESTRICTED

32 TM 38-220 (May, 1945), pp. 14-15.

33 Annual Report of the Station Section, Issue Branch, Distribution and Requirements Division, Supply Service, 1944, p. 4 (Historical Division, SGO, 319.1-2).

34 Equipment employed in transfusion, intravenous medication, wound dressing, spinal puncture, thoracentesis, catheterization, gastric lavage, gastroduodenal suction, and oxygen administration. So far as practicable, many other items were maintained in the central service, including hot water bags, ice bags, drainage tubes, rubber air cushions, rubber gloves, towels, syringes, and needles.

35 War Department Memorandum No. W 40-44, dated April 12, 1944, pp. 1-2.

36 Annual Report of the Finance and Supply Service, 1942, p. 10 (Historical Division, SGO, 024.6-10).

37 This included 190,000 station hospital beds and 23,000 general hospital beds. (Annual Report of the Supply Service, 1943, pp. 21-22 [Historical Division, SGO, 024.6-10].)

38 Annual Report of the Station Section, Issue Branch, Distribution and Requirements Division, Supply Service, 1944, pp. 1-2 (Historical Division, SGO, 319.1-2).

39 Annual Report of the Station Branch, Issue Division, Supply Service, 1945, Inclosure No. 1 (Historical Division, SGO, 319.1-2).

RESTRICTED

WATER AND THE MAINTENANCE

OF THE VITAL FUNCTIONS OF THE BODY.

NAME	AGE	SEX	WEIGHT	EXERCISE	TIME	TEMPERATURE	RESPIRATION	PULSE	SKIN	URINE	STOOL
L. W.	24	M.	160 lbs.	Walking	10 A.M.	98°	16	60	Smooth	Normal	Normal
L. W.	24	M.	160 lbs.	Walking	1 P.M.	98°	16	60	Smooth	Normal	Normal
L. W.	24	M.	160 lbs.	Walking	2 P.M.	98°	16	60	Smooth	Normal	Normal
L. W.	24	M.	160 lbs.	Walking	3 P.M.	98°	16	60	Smooth	Normal	Normal

WATER AND THE MAINTENANCE OF THE VITAL FUNCTIONS OF THE BODY.

NAME	AGE	SEX	WEIGHT	EXERCISE	TIME	TEMPERATURE	RESPIRATION	PULSE	SKIN	URINE	STOOL
L. W.	24	M.	160 lbs.	Walking	10 A.M.	98°	16	60	Smooth	Normal	Normal
L. W.	24	M.	160 lbs.	Walking	1 P.M.	98°	16	60	Smooth	Normal	Normal
L. W.	24	M.	160 lbs.	Walking	2 P.M.	98°	16	60	Smooth	Normal	Normal
L. W.	24	M.	160 lbs.	Walking	3 P.M.	98°	16	60	Smooth	Normal	Normal

WATER AND THE MAINTENANCE OF THE VITAL FUNCTIONS OF THE BODY.

WATER AND THE MAINTENANCE OF THE VITAL FUNCTIONS OF THE BODY.

RESTRICTED

CHAPTER X

DISTRIBUTION OF MEDICAL SUPPLIES TO THEATERS OF OPERATIONS



The responsibility of the Medical Department for the distribution of its supplies to overseas commands was a limited one. The ports of embarkation through which the supplies moved and the vessels and aircraft which conveyed them abroad were not under the Department's jurisdiction. Once overseas, the supplies were transported, stored, and issued under the supervision of the theater commanders, who were completely independent of the technical services. Yet, in the first stages of overseas distribution, the Medical Department had important responsibilities, the discharge of which placed the supplies on board the ships and consigned them to using installations across the seas.

The depot system, which has been described in Chapter VIII, was employed both for zone of the interior and overseas distribution. Port filler depots were the most important of the installations for the supply of overseas commands. Located at strategic spots some distance from the seaboard,¹ these depots had, as one of their most important missions, the responsibility of receiving medical supplies of all classes, storing these supplies in warehouses, and shipping them to ports of embarkation. At Toledo, Ohio, and Atlanta, Georgia, assembly depots packed the hospital assemblies, previously described in Chapter IX, and shipped them to the ports when needed. In addition, many of the depots of the Medical Department were "keyed" for the receipt and storage of certain scarce items; and to these depots, ports of embarkation sent extracts of requisitions. Finally, Holding and Reconsignment Points, operated by the Transportation Corps, were utilized to hold completed hospital assemblies, so that requisitions from ports could be speedily filled. Since these Holding and Reconsignment Points were located close to the ports, the assemblies could be moved quickly to meet ship sailings on short notice.²

At the apex of this system, stood the ports of embarkation, located at Boston, New York, Hampton Roads, Charleston, New Orleans, Los Angeles, San Francisco, and Seattle. Through these ports troop units and replacements moved to overseas stations, carrying with them their initial allowances of supplies and equipment; and through these ports, also, vast quantities of maintenance supplies were funnelled to all fighting fronts. Administered at first by the Quartermaster Corps and during the greater part of the war by the Transportation Corps, the ports of embarkation were nonetheless important parts of the Medical Department's supply system. Each port had a Medical Supply Division

RESTRICTED

which was headed by a Port Medical Supply Officer. This officer was on the staff of the Port Commander, functioned directly under him, and was the technical agent of The Surgeon General in supply matters.³ The Port Medical Supply Officer's duties and responsibilities are difficult to describe, for he was both a staff and an operating officer; but a full list of his functions will reveal the manner in which he discharged the Medical Department's supply responsibility.

The Port Medical Supply Officer:

1. Advised the Port Commander on matters pertaining to medical supply.
2. Maintained shipment status records of all medical supplies shipped through the port.
3. Was responsible to the Oversea Supply Officer for the follow-up of all overseas requisitions scheduled for shipment through the port. He maintained liaison with The Surgeon General's Office and the medical depots to assure himself that all medical supplies were made available and were shipped within the scheduled period.
4. Was responsible to the Initial Troop Equipment Division for the completeness and serviceability of equipment of all troop units moving through the port, and for all organizational equipment shipped through the port separately from personnel.
5. Purchased medical items needed in emergencies to supply outgoing forces.
6. Maintained port stocks of deteriorating items by placing delivery orders against open contracts.
7. Furnished medical equipment and supplies to Army transports, hospital ships, etc., on requisitions from the Port Surgeon.
8. Furnished emergency supplies to port terminals and staging areas.
9. Exercised staff supervision over stock control in the separate commands of the port.⁴

Each port of embarkation supplied a prescribed overseas area which was allotted to it. The New York Port, for example, was responsible for supply in the European Theater,

RESTRICTED

North Africa (later the Mediterranean Theater), and the Azores. The Boston Port served United States garrisons in Greenland and Newfoundland. The Seattle Port furnished supplies to Alaska and the Aleutian Islands. Close liaison was maintained between the port and its overseas area by survey trips, cable, and ordinary correspondence; and through this liaison numerous problems, presently to be discussed, were thoroughly explored and, to a great extent, were solved.

Shortly after the United States entered the war, directives of the War Department authorized the establishment of a system of automatic supply for overseas troops. This was the origin of the "Medical Maintenance Unit" which provided great quantities of medical supplies for United States soldiers in all parts of the world. Each unit consisted of 700 to 900 "fast-moving" medical items and was designed to supply 10,000 men for 30 days. The entire unit weighed 15 tons, occupied a space of 1,500 cubic feet, and was valued at approximately \$10,000 (1942 prices). To each troop unit stationed overseas, a number of Medical Maintenance Units was shipped which was sufficient to provide the prescribed level of supply. This level varied from time to time during the war, but it never fell below 60 days as a minimum nor rose above 180 days as a maximum. As additional troop units moved overseas, they were provided with the requisite number of maintenance units; and, after the arrival of the troops, other units were shipped to maintain the level of supply. Originally, the port filler depots established credits upon which the ports of embarkation drew whenever it became necessary to ship maintenance units overseas; but, beginning in 1943, they were shipped from port stocks. During a large part of the war, however, it remained the responsibility of the Port Medical Supply Officer to requisition or ship sufficient Medical Maintenance Units to maintain the supply in the overseas theater at the prescribed level.⁵

Supply officers in the zone of the interior looked upon the Medical Maintenance Unit as a temporary expedient. Although care was exercised to select medical items which would be needed in all areas, regardless of climatic conditions and combat situations, it was apparent that medical supplies do not lend themselves to automatic supply procedures as readily as rations do. The purpose of the system was to provide sufficient medical supplies to an overseas base until it had settled down and had accumulated issue experience which would guide it in requisitioning the items it needed. Before it went on a requisitioning basis, the base was authorized to inform its port of the deficiencies of the Medical Maintenance Units. It could, for example, request that certain items be deleted from subsequent shipments, that other items be added, or that the prescribed quantities be reduced or increased. This flexibility, it was thought,

RESTRICTED

~~RESTRICTED~~

would enable the port to adapt the Medical Maintenance Units to the various troop units and would provide information leading to the revision of the standard Medical Maintenance Unit. The latter objective was realized, for numerous suggestions were received which aided in revising the unit. But some overseas supply officers were content to receive the Medical Maintenance Units just as they were sent; and they were inclined, moreover, to remain on this automatic basis of supply for protracted periods. The resulting imbalance was a natural one and could have been predicted by any supply officer who was familiar with the variety of conditions under which American soldiers lived and fought. The quantities of quinine in the Medical Maintenance Unit resulted in large surpluses in Alaska and in acute shortages in the South Pacific. The consumption of many other items varied from place to place, with the result that enormous excesses were built up in some parts of the world while soldiers in other areas did not receive their minimum needs. Unbalanced stocks were thus developed; and as successive Medical Maintenance Units were shipped, the imbalance became more pronounced and more serious. It is not proper, however, to place upon automatic supply the responsibility for this fault, for no standard unit could take account of varying conditions all over the world. Rather, it was the abuse and the too-long-continued dependence upon the Medical Maintenance Unit which caused this maldistribution of badly-needed medical supplies. Used within its proper limits -- as a temporary method of supply -- the Medical Maintenance Unit successfully performed its functions.⁶

Not as much can be said, however, for its close relative -- the "Final Reserve Unit." American experience in the Bataan campaign seemed to indicate that troops should be provided with a quantity of medical supplies to be used only when they were besieged. To satisfy this presumed need, a "Final Reserve Unit" was devised, which consisted of 200 highly necessary medical items in quantities sufficient to provide for 10,000 men for 30 days. This unit was approximately one-third the size of the Medical Maintenance Unit and had a monetary value of \$5,000. Each overseas base was required to have on hand a 90-day supply of Final Reserve Units -- three units for each 10,000 men -- to be provided by the Port Medical Supply Officer when the troops embarked. These supplies were not to be confused or stored with regular maintenance, but were to be used only in the event of dire emergency. Deteriorating items were to be rotated, and each box in the unit was marked: "Final Reserve--Medical Supplies -- Not for Routine Use." When and if these supplies were consumed, the overseas base was expected to notify its port, so that additional units could be shipped.⁷

There was no repetition of the Bataan campaign during

~~RESTRICTED~~

RESTRICTED

the remainder of the war. Except for a few brief reversals, American troops remained on the offensive and were never besieged. Therefore, the occasion for which the Final Reserve Unit was devised never arose; and its value, except for insurance, was slight. There is reason to believe, moreover, that the regulations in regard to the unit were silently ignored after the Axis offensive had spent its force, that these supplies were stored and issued with the ordinary maintenance supplies, and that all thoughts of holding this type of reserve were quietly abandoned.⁸

Although several theaters of operations clung to automatic supply procedures for extended periods, all were ultimately placed upon an item requisition basis. In the spring of 1942, for example, the American forces in the British Isles began to submit requisitions for supplies,⁹ and approximately one year later the troops in North Africa abandoned automatic supply and relied upon requisitions. Late in 1943, the use of Medical Maintenance Units ceased almost completely in all theaters; but, until near the end of the war, it was observed that certain Pacific areas continued to requisition on a system of their own similar to the Medical Maintenance Unit.¹⁰

Requisitions were prepared by medical supply officers of the theater surgeon's staff and were transmitted, by radio, cable, or air mail, to the appropriate port of embarkation. Here they were received by the Overseas Supply Division, and were then submitted to the Port Medical Supply Officer for editing. All controlled items, all items in excess of allowances, and all nonstandard items were referred to the Distribution Division, ASF, for approval, the latter agency basing its decision upon information received from the Office of The Surgeon General. Early requisitions called for amounts far in excess of those authorized by consumption tables. This discrepancy was caused by the fact that overseas theaters were using a projected troop strength of which the ports were unaware. Later, theater troop strengths were announced in tables published by the Overseas Supply Divisions of the ports, and thus requisitions came to be submitted and edited on the same basis. After editing, the requisitions were returned to the Overseas Supply Division, which prepared extracts and sent them to the appropriate port filler depot. But the responsibility of the Port Medical Supply Officer continued after the editing had been completed. He maintained close liaison with the port filler depot, to be sure the supplies were available within the convoy period for which they were planned. The original requisition from the theater specified the time the supplies were needed in the theater. The extract requisitions prepared by the Overseas Supply Division translated these time requirements into a code designator; and the extract requisitions,

RESTRICTED

RESTRICTED

when sent to depots, specified when arrival at the port was required. This procedure proved to be inadequate, and in 1944 a Cargo Priority System was inaugurated. Upon request of the theater, the Oversea Supply Division was authorized to apply Priority 1 to any item on a requisition, Priority 2 on any special requisition, or Priority 3 to all other requisitions. The Port Medical Supply Officer was then charged with the responsibility of expediting Priority 1 items into the port for loading as soon as possible. Priority 2 items were given attention to insure shipment within the scheduled convoy period. Priority 3 items were not expedited, but were followed up routinely to see that shipments were made. When the depot made a shipment to the port, advance copies of the War Department Shipping Document were sent for the use of the Port Transportation Division and the Port Medical Supply Officer. Upon receipt of shipments at the port, tally-in copies of the shipping document were furnished to the Port Medical Supply Officer. And, when the supplies were loaded aboard the ship, he received "floated" copies of the hatch tally. Thus the Port Medical Supply Officer received and maintained records on the progress made with each requisition, and was able to check on and expedite the filling of requisitions.¹¹

The most important problems which arose in the filling of requisitions will be discussed later in this chapter. It is proper at this point, however, to mention the delays and difficulties caused by the failure of overseas commands to prepare and submit requisitions in the authorized manner. Sometimes requisitions for badly-needed supplies were sent direct to the Office of The Surgeon General. Instead of hastening the arrival of the supplies, this procedure delayed them; for such requisitions were routinely referred to the ports of embarkation, to which they should have been addressed in the first instance.¹² Very frequently, the requisitions did not give sufficient information. Many failed to include the basis for the requisition; the amounts "on hand and due," "consumed," and "required"; a full description of nonstandard items needed; and the current and voltage of electrical equipment requisitioned. These omissions occasioned serious delays in the filling of the requisitions, for editing authorities were compelled to query the theater and obtain the missing data.¹³

The problems of time and distance, involved in overseas distribution, were considerably aggravated by the delays mentioned above. The theaters prepared their regular maintenance requisitions on a monthly basis and included all items that had fallen below the authorized level, which varied from one theater to another. In the European Theater, for example, the designated level was 180 days. A supply sufficient to last 75 days was to be maintained.

RESTRICTED

RESTRICTED

in the theater, and the remaining 105 days of supply represented the time which would elapse between the submission of the requisition and the receipt of the supplies. This "turn around period" was considerably longer for some of the other theaters. In the Southwest Pacific, an average of 135 days was required; and in India, 180 days elapsed before the supplies could be received. These figures indicate the performance near the close of the war; early in the conflict, even longer "turn around periods" prevailed.¹⁴

In addition to providing for automatic supply and the filling of itemized requisitions, the Medical Department's supply system had important responsibilities in equipping all tactical units of the Army with organizational equipment prior to overseas movement. In 1942, a Field Equipment Subdivision was established in the Finance and Supply Service, SGO, to discharge this duty.¹⁵ Tactical units customarily received their organizational equipment through the Post Medical Supply Officer, who drew upon his distribution depot. During most of the war, however, many items of this equipment were very scarce, and frequently these shortages could be supplied only through the aid of the Office of The Surgeon General. Reports of shortages were transmitted to the Field Equipment Subdivision, which consulted stock reports from depots and ordered shipment of the needed equipment. So far as possible, during 1942-43, the tactical units were completely equipped at their home stations. When this could not be accomplished, the remaining shortages were supplied by shipment to the port of embarkation from which the unit was scheduled to depart. Occasionally units left for overseas stations before their equipment could be furnished; in such instances, the equipment was shipped to the port and followed the units overseas.¹⁶ These belated shipments became so numerous and in so many instances never reached the troop unit to which they were directed, that in the spring of 1945 a new procedure was adopted. Thereafter, when the equipment could not reach the home station by the required date, the unit was so informed and the requisitions were cancelled. The missing items were supplied from port stocks, or, if not available at the port, were issued at the overseas destination.¹⁷

In the meantime, it had become clear that the available organizational equipment was too limited in quantity to supply all the units which were moving overseas in 1944. A priority system was necessary which would provide equipment to the units which were to participate in the European campaign. This was achieved in June 1944 when the "Rcd. List" procedure was initiated. It was stipulated that all units on the list must be fully equipped prior to overseas movement and that the troops and their equipment were to be combat loaded, for the units were to be operational fifteen days

RESTRICTED

~~RESTRICTED~~

after landing. This plan required special procedures on the part of the Supply Service, the medical depots, and the units on the list. The units were notified of the pending movement prior to the publication of War Department movement orders, so that local supply officers would have an opportunity to make a final effort to complete their equipment. Shortages were promptly reported to the Office of The Surgeon General, which issued top priority requisitions to the depots, directing that the equipment be immediately dispatched to the unit's home station. When time was not available for this direct shipment, the equipment was sent to the Holding and Reconsignment Point at Elmira, New York, where shortages for each unit were segregated and assembled.¹⁸ Then, after it was determined from which port (Boston or New York) a unit would embark, the equipment was shipped to the proper port and thus was available when the troops arrived.

In the execution of the "Red List" procedures, a number of problems developed. The frequent transfers of units within the zone of the interior resulted in much cross-hauling, lost shipments, and duplicate shipments. The misinterpretation of directives, regarding equipment which should be sent to the home station and that which should go to Elmira, resulted in duplicate shipments and excesses at Elmira. At length, the Holding and Reconsignment Point became so swamped with freight that it became impossible, within the time available, to sort and mark the equipment. This produced numerous shortages, especially in hospital assemblies, that had to be filled from port stocks.

Despite these difficulties, the achievements produced by the "Red List" procedure were impressive. The list included 100 separate movement orders, directing the overseas movement of approximately 725,000 men and their equipment. In discharging its supply responsibility, the Medical Department provided the appropriate organizational equipment for the following units:

20	Infantry Divisions
8	Armored Divisions
1	Airborne Division
42	General Hospitals
14	Field Hospitals
22	Evacuation Hospitals (400-bed)
1	Evacuation Hospital (750-bed)
17	Hospital Trains
2	Medical Laboratories ¹⁹

It should not be assumed from the foregoing accounts that organizational equipment and maintenance supplies accompanied all troop units as they departed for overseas stations, for in 1943 very large quantities of medical items

~~RESTRICTED~~

RESTRICTED

were shipped to the British Isles in anticipation of heavy troop movements to follow. This pre-shipment plan was based on the knowledge that the excess of shipping space then available would be transformed into a deficit when the movement of troops reached its peak. The decision was made, therefore, to take advantage of the available shipping space and to build up a stock of medical equipment and supplies which would partially support the large-scale campaigns in prospect.

The first shipments under this plan were made in April 1943 and contained specific organizational equipment for the troops plus 45 days of maintenance supplies. Units included in the pre-shipment plan returned their organizational equipment to local supply officers. All outstanding requisitions were cancelled, and any subsequent ones were returned without action. The troops carried a minimum of essential equipment, referred to as TAT (To Accompany Troops), comprised of individual equipment, such as the medical kits, and the MD chests 1 and 2. The kits proved to be readily available and very practical in providing medical care en route, but the chests were packed in the hold of the ship and were not accessible to the using organization during the entire trip.

Before the troops left their home stations, the Supply Service, SGO, studied the appropriate Tables of Organization and Equipment and calculated the quantities which would be required for the units. Shipping orders for these quantities were then sent to the appropriate depots. All shipments of this equipment moved through the New York and Boston ports: 75 percent through New York and 25 percent through Boston. The packing cases were marked "ADV" to identify them as advance supplies, and additional markings ("SOXO" and "GLUE") represented the destination ports in the United Kingdom. Having arrived in the British Isles, the supplies were convoyed to a designated key depot and then were transported to a depot near the troop unit's permanent camp. Poor transportation facilities and pilfering caused the last movement to be accompanied by considerable losses, and in March 1944 Medical Department units were authorized to move into the key depot and pick up their equipment with their own transportation.

The advantages of pre-shipment were numerous and important. It allowed the shipment of supplies in bulk. It eliminated the losses and damage experienced when organizational equipment accompanied troops. It permitted the distribution of critical items within the theater according to the tactical priority of units. It made possible the modification of equipment in bulk. Finally, as mentioned above, pre-shipment utilized the shipping space which was

RESTRICTED

available prior to the heavy troop movements of 1944.

There were, however, two disadvantages which rendered the plan somewhat less than completely successful. Throughout the period, "troop lifts" were subject to frequent amendments, thus making it difficult for the Medical Department to plan its shipments. In addition, numerous changes in Tables of Organization and Equipment Lists were made after the publication of a troop lift and prior to the movement of troops. Equipment was shipped against one Equipment List, and troops were moved in accordance with an amended list. This caused units to requisition for new items prior to their availability in the theater, and necessitated the cancellation of requisitions and the augmentation of previously calculated requirements and shipments. It is very probable, however, that this latter disadvantage is inseparably connected with all supply operations in a lengthy war, and can be eliminated only by foregoing the advantages which accrue from the improvement of equipment lists.²⁰

Throughout the war, special procedures were adopted in the shipment of medical supplies whenever the tactical situation or the nature of particular supplies required a departure from routine operations. The great bulk of the supplies, of course, moved through ports of embarkation and were convoyed overseas by surface ships; but from 1943 until the end of the war two important medical items, penicillin and whole blood, used the facilities of the Air Transport Command for speedy distribution to theaters of operations. Air shipment was rendered necessary by the perishability of the items and by the pressing needs of overseas installations. For example, when penicillin first became available in 1943, the "out-dating" period was only three months. Even after this period was considerably lengthened air shipment continued to be the best method by which the drug could be moved overseas and still retain a relatively large period of its usefulness. The Penicillin Board of the Surgeon General's Office met monthly and made allocations for zones of the interior hospitals and the overseas theaters. Routine air priorities were established, the commercial laboratories which produced penicillin rushed the drug to aerial ports of embarkation, and planes of the Air Transport Command carried increasing quantities of the item to American troops on all continents. Penicillin ceased to be an allocated item in 1945, and the quantities shipped depended upon the expressed needs of overseas commands. In addition, surface vessels began to carry a portion of this cargo late in the war. Despite these changes, however, the distribution of penicillin was never characterized by the routine procedures which were employed in the shipment of more stable and more plentiful medical supplies.²¹

RESTRICTED

Experience gained in the air shipment of penicillin proved to be valuable in the distribution of whole blood, an even more perishable item. The need for whole blood was first demonstrated in the North African campaign. In February, 1944, at the beginning of the Anzio offensive, a "blood bank" was organized in the Mediterranean Theater, which furnished 400 pints daily to Fifth Army hospitals. Prior to the Normandy landings, a blood bank was established in the European Theater, but by August 1944 it had become apparent that whole blood must be shipped from the United States. Fortunately, the need had been anticipated by the Supply Service and most of the essential items of equipment had already been developed, such as anticoagulant solutions, donor sets, and recipient sets. The far-flung service of the Red Cross, established to procure donations for blood plasma, was available to furnish the type "O" whole blood which was needed at the battle fronts.

Employing the facilities of the Air Transport Command, whole blood shipments to Europe were started on August 21, 1944 within a few days after the request for them was received by The Surgeon General. At first, only about 250 pints were shipped daily; but later in the year the amounts increased until more than 1,000 pints reached Europe each day. By the time shipments were suspended (May 10, 1945) a total of 206,000 pints of whole blood had been shipped to the hospitals of the European Theater.

In the beginning, the shipments were not refrigerated, for it was assumed that the relatively high altitudes maintained by the planes would keep the blood sufficiently cool. The bottles were chilled before and after the blood was drawn; and, when ready for shipment, they were packed in cardboard boxes wrapped in heavy paper. It was discovered, however, that refrigeration of the blood en route was desirable.²² In the spring of 1945 the Technical Division, SGO, developed a special shipping container which consisted of an insulated refrigerator holding a can of wet ice. The refrigerator weighed 35 pounds empty and 104 pounds when fully packed, and held 24 bottles of 600 cc. capacity, a can with 19 pounds of ice, and 24 recipient sets. Temperature of the whole blood was maintained at less than 5 degrees centigrade during 24 hours of summer weather.

The plan for shipping blood to the Pacific theaters was similar to the procedures established for Europe, except that it was Navy-operated. From the various donor centers, the blood was flown to the Navy's aerial ports of embarkation on the west coast. From November 1944 to September 1945 nearly 180,000 pints of whole blood were conveyed to Pacific theaters, the shipments varying from 300 to 1,800 pints per day. The efficiency of the new

RESTRICTED

~~RESTRICTED~~

shipping container was demonstrated by the fact that the first 16,000 pints of blood shipped to Manila arrived without a single broken bottle and with the contents in good condition for immediate use.²³

The special procedures adopted for the shipment of penicillin and whole blood prevented the occurrence of many serious problems in the overseas distribution of these items. For the great bulk of medical supplies, however, it was impractical to devise special methods of distribution. Accordingly, numerous problems developed which hampered the speed and efficiency with which medical supplies were distributed to the distant battle fronts. The most basic and fundamental difficulty which affected distribution was the existence of shortages -- overall shortages early in the war and shortages of certain critical items throughout the conflict. For reasons which are set forth in the chapters on procurement, the Medical Department was unable to purchase, in the time allowed, the great quantities of supplies required by the rapidly expanding Army. Very frequently, therefore, overseas requirements could not be supplied with either promptness or completeness. In 1942, when Medical Maintenance Units were the main resource of overseas commands, ports of embarkation were unable to supply the demand. Requisitions upon port filler depots produced only about 45 to 55 percent of a unit. The remainder of the items were sent in from scattered points in small shipments, with the result that only a few complete Medical Maintenance Units were shipped overseas.²⁴ The same difficulty, in a more aggravated form, arose when the theaters of operations were placed on an item requisition basis. The port medical supply officer extracted the requisitions to the appropriate port filler depot. Quite frequently, the latter did not have the supplies. It made an extract, therefore, to another depot. Thus extracts moved from depot to depot in a time-consuming search for scarce items, a situation produced by shortages and by the scattering of critical items among a number of depots. In 1944, this problem was finally solved by the adoption of the following procedure: When a port filler depot was unable to fill a requisition, a shortage list was immediately transmitted to the Port Shortage Section of the Inventory Control Branch, Supply Service. This agency examined the consolidated stock report, which showed the quantities of all items on hand in all depots, and then informed the port filler depot where to extract its requisition. Under this procedure a single extract sufficed, and valuable time was gained in the filling of overseas requisitions.²⁵

As the war progressed, the problems of overseas distribution were rendered more acute by the excessively large requisitions transmitted to the ports of embarkation.

~~RESTRICTED~~

RESTRICTED

Supply officers in the theaters were authorized to maintain levels of supply sufficient for a designated number of days, which varied from time to time and from theater to theater. The quantity of each item stocked depended upon the days of supply authorized, the number of troops in the theater, and the maintenance or replenishment rates. It was expected that the maintenance factor would be largely based upon issue experience, but the uncertainties of war rendered it necessary that allowance be made for unexpected and unprecedented needs which only the future could fully disclose. In short, the maintenance or replenishment factor was elastic and could be stretched to cover any demands which a theater supply officer's prudence, pessimism, or hoarding instinct led him to anticipate. The elasticity of this maintenance factor produced requisitions for excessively large quantities of medical supplies; and these requisitions, in turn, created serious problems in the ports of embarkation and the Office of The Surgeon General. Requisitions for unusually large quantities were edited by these agencies, but there was a disposition to be lenient in the editing and thus allow the theaters to have what they wanted, so far as the availability of the supplies and equipment permitted.²⁶ As an inevitable result, inequities and maldistribution resulted. In November 1944, for example, two large requisitions for alcohol were received from the Pacific area, which completely wiped out stocks of this item in the San Francisco depot. Until the supply could be replenished by inter-depot transfers and new procurement, other requisitions from the Pacific area could not be filled.²⁷ By December 1944 Supply Service officers concluded that the policy of lenient editing must be abandoned. So many large requisitions had been recently received from the Pacific, that strict editing would be necessary if other theaters were to have their minimum needs supplied.²⁸ A large portion of this difficulty appears to have been caused by poor stock control procedures in the theaters, the natural tendency to hoard, and by the failure to base requisitions upon issue experience. Indeed, as late as February 1945 some supply officers in the Pacific were still requisitioning on the basis of Medical Maintenance Units or on a system of their own similar to the Medical Maintenance Units. Thus the basic error of automatic supply was perpetuated, producing great surpluses of some items and acute scarcities of others.²⁹

In the meantime, extremely large requisitions from the European Theater of Operations were placing a burden upon ports of embarkation and medical depots. A 90-day stock level for depots, based upon previous issues, was adopted July 1, 1944.³⁰ During the three months which followed, the Medical Department learned that this stock

RESTRICTED

level was unequal to the huge quantities of medical supplies used in mechanized warfare. After beachheads were established on the Normandy coast and requisitions were received for direct shipment to the continent, it became apparent that a quantity of many items sufficient to last 90 days prior to the invasion was not sufficient to meet a single overseas requisition. Stocks at Binghamton, the port filler depot which served New York, were soon exhausted; and extracts fanned out to the eastern and central depots in a frantic effort to fill the requisitions. Despite new procurement and heavy inter-depot transfers, the port filler depot continued to be burdened beyond its capacity until VE-day brought relief in May 1945.³¹

The foregoing experience clearly indicated the necessity for accurate, up-to-date maintenance rates. In April 1945 a special board was established by the Stock Control Division, Supply Service, to review maintenance issue experience for the period January 1, 1944, to March 31, 1945, and to compute maintenance rates on the basis of that experience. Near the end of the war, therefore, the Medical Department developed and put into use maintenance rates which reflected its experience in preparing for combat, stock piling in theaters, and actual expenditures of supplies and equipment under combat conditions.³²

The lack of shipping space, vast distances involved, and frequent movement of troop units within theaters of operations created problems in overseas distribution that were next in importance to those produced by the scarcity of supplies. "One of the great bottlenecks in the shipment of Medical Maintenance supplies is the lack of space available on bottoms going from this port," a New York medical supply officer declared in September 1942.³³ Shipments from the port were arranged first by the Port Quartermaster and later by the Port Transportation Division. Until late in 1942 there appears to have been a "tendency to ship large quantities of rations and little of anything else."³⁴ The medical supply level in England continued to fall until the autumn of 1942, when there was only three days of supply on hand. At that time there were more medical maintenance supplies in the port than in all overseas theaters combined. This situation was repeatedly brought to the attention of the Overseas Supply Division, and in November 1942 a first priority was established for all medical supplies in the port. Forty-two Medical Maintenance Units, sufficient to last 420,000 men for 30 days, were loaded aboard a single vessel for shipment to England. This was a hazardous undertaking, for sinkings by submarines were numerous at the time; but the freighter carrying the units arrived safely, thus relieving the critical supply situation in England.³⁵

RESTRICTED

In 1943, Headquarters, ASF, directed that unit equipment for fixed hospitals and 750-bed evacuation hospitals would not be shipped to the British Isles, but would be procured there locally. This policy resulted in an estimated reduction of approximately 4,300 tons per month, and thus considerably eased the acute shipping problem. Later events proved this policy to be extremely short-sighted. By February 1944, with D-day only four months away, the Chief Surgeon, ETO, had been able to procure and assemble only a small fraction of the hospital equipment needed for the invasion. The result was a hurried call on the zone of the interior for completely assembled hospitals. Fortunately, this demand was met in time.³⁶

The shortage of dock facilities and the resulting delay in unloading ships in overseas theaters produced all the results of inadequate shipping space. In December 1943, for example, a vessel in the harbor of Milne Bay carried large stocks of atabrine, but facilities were not available to unload the vessel. This created a serious shortage in the drug which could be relieved only by a loan of a million tablets from the Australian Army. On another occasion, a large quantity of atabrine was flown from the United States to New Guinea, while the needed supplies were in the harbor but could not be discharged. Another ship carrying thousands of cases of medical supplies was anchored in the harbor of Finschafen for 70 days before it was unloaded. Throughout the war, the Medical Department was at a disadvantage because its supplies occupied little volume. When medical cargo was stowed aboard a ship the bulk of whose supplies were of low priority, the medical supplies remained unloaded for weeks and months.³⁷ Between the Normandy landings and the collapse of Germany, the inability of theaters to unload ships in both the Atlantic and Pacific areas had important repercussions in the zone of the interior. At one time it became necessary to suspend for 30 days all water shipments to the European Theater, except those having a high priority. Shipments to certain Pacific theaters were also suspended for a short period, with the result that the Pacific ports and the port filler depots had difficulty in finding sufficient storage space for incoming shipments.³⁸

As the war in the Pacific moved to the north and west, inadequate shipping caused further difficulties. Great surpluses of medical supplies had been built up in the Southwest Pacific and South Pacific which would have been extremely useful in the Central Pacific, but sufficient shipping was not available to transport the supplies and equipment to the north. Troop units which moved to the Central and Western Pacific, "to keep up with the war," received the bulk of their supplies from the United States, notwithstanding

RESTRICTED

RESTRICTED

standing the immense surpluses they left behind. In some instances, these surplus supplies were returned to the United States and then shipped to the Central Pacific. This long haul appeared wasteful, but the scarcity of shipping which moved from the south to the north rendered the roundabout route more practicable.³⁹

The Atlantic area was not troubled by the immense distances, abandoned bases, and the primitive docking and storage facilities which beset the Pacific; but overseas distribution to the European Theater encountered a most serious and persistent problem in the shipment of hospital assemblies. These assemblies consisted of many boxes, crates, and bales, containing all the supplies and equipment needed to establish a hospital installation. It was assumed that all the component parts would be placed aboard a single vessel, transported to and unloaded at a pre-determined overseas port, and thence conveyed to the hospital site. But the hard realities of overseas shipping led to numerous departures from this ideal plan and created a degree of confusion which seriously reduced the advantages of hospital assemblies. They arrived at ports of embarkation with many items of supply and equipment missing, for there was insufficient stock in the depots to build complete assemblies. Frequently, only 30 to 40 percent of an assembly was sent to a port, the remainder of the items arriving over an indefinite period of time. Whenever any cargo space was available, portions of these incomplete assemblies were shipped. As a result, delays were encountered in establishing general, station, and evacuation hospitals in the British Isles. Late in 1942, the Theater Surgeon made vigorous protests to the Office of The Surgeon General. An investigation was launched, and the Overseas Supply Division of the New York Port announced the policy that each hospital assembly moving through the port would, in the future, be held until functionally complete and then shipped on a single vessel.⁴⁰

This policy appears to have been generally adhered to until early in 1944, when there was a resurgence of activity in the shipment of assemblies to England, in preparation for the continental campaign. Throughout the year, numerous complaints were received, declaring that split-shipments were again occurring and that the resulting confusion and disorder were impairing the medical service of the ETO. It was charged, also, that when complete assemblies were shipped on a single vessel, the boxes and crates were scattered over various parts of the ship. This made the collection of the items difficult when all were unloaded at a single port, and sometimes led to the discharge of the same assembly at two or more ports. Another investigation was launched, which disclosed that the New York Port had practically eliminated split-shipments and that the Boston Port

RESTRICTED

was responsible for most of the difficulties. Concerted efforts were then made to solve the problem completely by bulk-stowing in the same hold all parts of an assembly, so that it would be unloaded as a unit upon arrival overseas. This step appears to have produced good results, and complaints about split-shipments practically ceased during the last few months of the war.⁴¹ It is interesting to note, however, that when hospital assemblies were moved from England to France, to support the invasion of 1944, split-shipments broke out like a rash. Component items of an assembly were unloaded from different ships at widely separated points and were collected at hospital sites only with great difficulty.⁴²

The tonnage of medical supplies shipped overseas was very small when compared with the shipments of other technical services, but statistics which are now available will demonstrate in broad outline the accomplishments of the Medical Department's supply program. From December 1941 through August 1942, a total of 32,644 measurement tons were dispatched to the European Theater. During this period, shipments were small and infrequent, averaging less than 4,000 tons per month. This amount was gradually increased as the war progressed, until in 1944 the European Theater was receiving from 12,000 to 29,000 tons per month. By October 1944 a total of 321,210 tons had been shipped to that theater since Pearl Harbor. In the meantime, the North African Theater was activated and later was merged with the Mediterranean Theater. To this area, the New York Port began to send supplies in November 1942, beginning with a shipment during that month of 447 tons. A total of 122,223 measurement tons had been shipped to the Mediterranean Theater of Operations by October 1944. Thus, the single port of New York, during the period under consideration, dispatched a total of 443,433 tons of medical supplies to the most important areas of land warfare.⁴³

To all theaters of operations, a total of 2,308,988 packages of medical supplies were sent during the period September 1943 to May 1944. The total tonnage, for all theaters, during the period was approximately 140,000.⁴⁴ This included a large number of Medical Maintenance Units, quantities of non-assembled supplies, and more than 350 hospital assemblies, varying in size from the 1,000-bed general hospital to the 25-bed portable surgical hospital.⁴⁵ During the fiscal year ending June 30, 1945, a total of 266 hospital assemblies were shipped to all theaters.⁴⁶

Were the needed supplies shipped overseas at the proper time and in sufficient quantities? Statistics which show the tonnage of medical supplies cannot answer this question, for they are incapable of comparing supply with demand and

RESTRICTED

striking a balance sheet of success or failure. Fortunately, there is abundant evidence of another kind which answers the question. The Essential Technical Medical Data Reports received from all theaters each month devoted some attention to supply problems. Routine reports of medical units in overseas commands revealed valuable information. Special reports rendered by investigators who visited the theaters frequently threw light upon the successes and failures in the supply program. These sources indicate that throughout the war and in all theaters certain items of supply and equipment were scarce. Some of the scarcities were caused by the maldistribution and hoarding which have been described in Chapter IX. Others were occasioned by the failure to procure sufficient quantities. Still other scarcities were the result of lost shipments, poor storage conditions, and the sudden movement of troop units away from supply bases. There were times, also, when the evacuation of patients was accompanied by such a faulty property exchange system that litters, blankets, and splints became exceedingly scarce in combat areas.⁴⁷ Finally, a number of shortages were caused by the failure of overseas supply officers to forward requisitions to the zone of the interior. In the India-Burma Theater, for example, no requisitions were prepared for a 90-day period following January 1944, and as late as July of that year the January requisition on the United States lay unattended in Calcutta.⁴⁸

But the shortages mentioned above were quite exceptional after 1943. On the broad canvas of overseas medical supply, they were little more than small, widely-spaced splotches which were far out-numbered by the many instances of excess supplies. Indeed, the canvas, when viewed from a distance, presents a picture of overflowing abundance during the last two years of the war, of surpluses in some areas (notably the South Pacific) which were a source of acute embarrassment. Medical Department investigators, in 1944-45, returned from theaters of operations convinced that medical supplies, on the whole, were generously abundant. It was asserted that the supplies received in the Pacific theaters were the "envy of all technical services with respect to being received on time, in the proper quantities, and in first-class condition as to packing and packaging."⁴⁹ On Saipan, Guam, and the Palau Islands, supplies and equipment were far more than ample.⁵⁰ On the other side of the world, at the height of the European campaign, the Chief Surgeon of ETO declared that his needs were amply filled. When pressed to name any items he desired in greater abundance, he could name only one. The theater could use, he said, a somewhat larger supply of two types of whole blood.⁵¹ Reports of this abundance received additional confirmation in the summer of 1945; for when the war ended, large surpluses of medical supplies were revealed in all theaters. There appeared to be a sufficient quantity in ETO to launch a large-scale invasion of Japan, if the continued resistance of that country had made such a campaign necessary.⁵²

RESTRICTED

~~RESTRICTED~~

NOTES FOR CHAPTER X

¹ Like other parts of the Medical Department's depot system, the port filler depots were changed from time to time during the war. In 1943, these depots were located at Ogden, Utah; Columbus, Ohio; and Schenectady, New York. In 1945, port filler depots were in Binghamton, New York; Los Angeles, California; Louisville, Kentucky; St. Louis, Missouri; San Francisco, California; Richmond, Virginia; Seattle, Washington; and Ogden, Utah. (See Appendix, Exhibits 6, 6b, and 8).

² In 1943, these Holding and Reconsignment Points were located at Elmira, New York; Yermo, New Mexico; Montgomery, Alabama; Richmond, Virginia; and Lathrop, California. (Annual Report of the Supply Service, 1943, pp. 25-26 [Historical Division, SGO, 024.6-107].)

³ Brigadier General G. P. Cross, Chief of Transportation Service, to the Commanding General, New York Port of Embarkation, May 2, 1942 (Historical Division, SGC, 400.3).

⁴ "Training Kit of the Port Medical Supply Division," New York Port of Embarkation, July 22, 1944, pp. 1-2 (Historical Division, SGO, 400.3).

⁵ Lieutenant Colonel S. B. Hays to The Medical Supply Officer, New York Port of Embarkation, March 19, 1942; Major Abraham Freedman, "Overseas Supply" (New York Port), p. 3 (Historical Division, SGO, 400.3).

⁶ Ibid; Charleston Port of Embarkation, "Overseas Medical Supply," pp. 2-4 (Historical Division, SGO, 400.3).

During the fiscal year ending June 30, 1943, approximately 1,575 Medical Maintenance Units were shipped to overseas bases. (Annual Report of the Supply Service, SGO, 1943, pp. 23-25 [Historical Division, SGO, 024.6-107].)

⁷ Charleston Port of Embarkation, "Overseas Medical Supply," pp. 2-4 (Historical Division, SGO, 400.3).

⁸ The records to which the writer has access are silent on the manner in which the Final Reserve Units were actually used. Tentative conclusions in the text are based upon conversations with supply officers who served in overseas

~~RESTRICTED~~

RESTRICTED

commands.

A total of 542 Final Reserve Units were shipped to the theaters during the fiscal year ending June 30, 1943. (Annual Report of the Supply Service, SGO, 1943, pp. 23-25 [Historical Division, SGO, 024.6-107].)

⁹ Major Abraham Freedman, "Overseas Supply," p. 3 (Historical Division, SGO, 400.3).

¹⁰ "Notes on Supply Service Staff Meetings," February 27, 1945.

¹¹ For a full discussion of the procedures employed in filling requisitions at the New York Port, see Major Abraham Freedman's "Overseas Supply," pp. 3 - 5 (Historical Division, SGO, 400.3).

¹² This habit became so widespread, that in February 1943, Circular Letter No. 36, SGO, was issued to compel the submission of all requisitions to the ports.

¹³ Charleston Port of Embarkation, "Overseas Medical Supply," pp. 29-30 (Historical Division, SGO, 400.3).

¹⁴ Brigadier General Edward Reynolds' Address of September 19, 1945, p. 21.

¹⁵ Annual Report of the Finance and Supply Service, 1942, p. 11 (Historical Division, SGO, 024.6-10).

¹⁶ Captain Thomas B. Stewart to Lieutenant Colonel Welsh, December 29, 1942 (Historical Division, SGO, 400.3).

¹⁷ Major R. L. Parker, "Supplementary Material on History of Supply Service" (March, 1946), p. 6 (Historical Division, SGO, 400.3).

¹⁸ Certain heavy equipment, such as hospital assemblies, were sent to Elmira, even though time was available to ship them to a unit's home station. This prevented cross-hauling and reduced the possibility of loss or damage in transit.

¹⁹ The information in regard to the "Red List" procedure is based largely upon Major R. L. Parker's "Supplementary Material on History of Supply Service," pp. 8-9. See also the Annual Report of the Equipment Branch, Issue Division, Supply Service, SGO, 1945, pp. 1-2 (Historical

RESTRICTED

RESTRICTED

Division, SGO, 319.-1).

²⁰The section devoted to the pre-shipment plan has been based upon Major R. L. Parker's "Supplementary Material on History of Supply Service," pp. 1-5.

²¹Brigadier General Edward Reynolds' Address of September 19, 1945, pp. 27-29; see also Annual Report of the Distribution and Requirements Division, Supply Service, SGO, 1944, p.2 (Historical Division, SGO, 024.-6).

²²Even under optimum conditions, whole blood is a most perishable item. Twenty-one days under refrigeration is its maximum life.

²³Annual Report of the Overseas Branch, Issue Division, Supply Service, SGO, 1945, p. 2 (Historical Division, SGO, 319.-1); Brigadier General Edward Reynolds' Address of September 19, 1945, pp. 29-32; "Notes on Supply Service Staff Meetings," September 29, 1944, February 6, 1945.

²⁴Major Abraham Freedman, "Overseas Supply," p. 7 (Historical Division, SGO, 400.3).

²⁵Annual report of the Inventory Control Branch, Distribution and Requirements Division, Supply Service, SGO, 1944, pp.5-6 (Historical Division, SGO, 319.1-2).

²⁶The Chief of the Supply Service announced this as a policy in the fall of 1944, explaining that lenient editing would still further strengthen the stock level system as the basis of procurement. "Notes on Supply Service Staff Meetings," October 13, 1944.

²⁷Ibid; November 14, 1944.

²⁸Ibid; December 22, 1944.

²⁹Ibid; February 27, 1945.

³⁰This stock level was established in obedience to a directive of Headquarters, ASF.

³¹Annual Report of the Stock Control Division, Supply Service, 1945, pp. 1-2 (Historical Division, SGO, 319.1-2).

RESTRICTED

³² Ibid; p. 4.

³³ Second Lieutenant Adolph I. Weil, Jr., to Major Simmons, September 15, 1942 (Historical Division, SGO, 400.3).

³⁴ Major Abraham Freedman, "Overseas Supply," p. 7.

³⁵ Ibid; p.7; Second Lieutenant Adolph I. Weil, Jr., to Colonel Huggins and Major Simmons, September 15, 1942 (Historical Division, SGO, 400.3).

³⁶ Headquarters, SOS, ETO, "Answers to questions raised and subjects proposed for discussion by The Surgeon General, June 4, 1943, pp. 1-2 (Historical Division, SGO, 371. Problems, ETO); information supplied by Colonel S. B. Hays (formerly on the staff of the Chief Surgeon, ETO), April, 1946.

³⁷ Brigadier General Edward Reynolds' Address, September 19, 1945, pp. 22-24.

³⁸ Annual Report of the Overseas Branch, Issue Division, Supply Service, SGO, 1945, pp.2-3 (Historical Division, SGO, 319.1).

³⁹ "Notes on Supply Service Staff Meetings," December 15, 1944.

⁴⁰ Major Abraham Freedman, "Overseas Supply," p. 8.

⁴¹ "Historical Record of the New York Port of Embarkation," January 1, 1944 - March 31, 1944, pp. 2-4; Colonel Henry J. Amy to Overseas Supply Officer, New York Port, December 22, 1944 (Historical Division, SGO, 400.3).

⁴² Report of Operations, First United States Army, June 6 - August 1, 1944, pp. 25-28 of Annex No. 21 (Historical Division, SGO, 319.1).

⁴³ Lieutenant Colonel H. D. Brown (New York Port) to The Surgeon General, November 24, 1944 (Historical Division, SGO, 400.3).

⁴⁴ Annual Report of The Surgeon General of the Army for the Commanding General, ASF, 1944, pp. 53-54 (Historical

REFRICTED

RESTRICTED

Division, SGO, 319.1-2).

⁴⁵ Ibid; pp. 53-54.

⁴⁶ Annual Report of the Equipment Branch, Issue Division, Supply Service, SGO, 1945, Inclosure "B" (Historical Division, SGO, 319.-1).

⁴⁷ Annual Report of the Overseas Branch, Issue Division, Supply Service, SGO, 1945, pp. 4-5 (Historical Division, SGO, 319.-1).

⁴⁸ This remarkable situation was produced, two SGO investigators declared, by "an experienced officer" who was placed in charge of procurement and distribution of medical supplies in the theater. (Annual Historical Report of the 4th Medical Supply Platoon, Avn, 48th Air Depot (Chabua, India), p. 3 [Historical Division, SGO, 319.-17.])

⁴⁹ The Bulletin of the U. S. Army Medical Department, March 1945, p. 43.

⁵⁰ "Notes on Supply Service Staff Meetings," September 29, October 13, 1944.

⁵¹ Ibid; December 8, 1944.

⁵² Seven months after the end of the war in the Pacific, a press correspondent reported the presence of "tens of thousands of tons of medical supplies" on Tinian, Guam, and Okinawa. (Time, April 8, 1946, p. 79.)

RESTRICTED

—15-238

RESTRICTED

CHAPTER XI

MEDICAL SUPPLIES FOR INTERNATIONAL AID

While it was furnishing medical supplies to United States Army troops in all parts of the world, the Medical Department had the additional responsibility of providing for the supply needs of numerous foreign governments who were also waging war on the Axis. The Lend-Lease Act,¹ which was approved on March 11, 1941, granted authority to sell, exchange, lease, or lend supplies and equipment to any government whose defense the President deemed vital to the defense of the United States. The governments which were declared eligible to receive lend-lease aid, together with the date of eligibility, are as follows:²

<u>COUNTRY</u>	<u>DATE</u>
Argentina	May 6, 1941
*Australia	November 11, 1941
*Belgium	June 13, 1941
*Bolivia	May 6, 1941
*Brazil	May 6, 1941
*Canada	November 11, 1941
*Chile	May 6, 1941
*China	May 6, 1941
*Colombia	May 6, 1941
*Costa Rica	May 6, 1941
*Cuba	May 6, 1941
Czechoslovakia	January 5, 1942
*Dominican Republic	May 6, 1941
*Ecuador	May 6, 1941
*Egypt	November 11, 1941
El Salvador	May 6, 1941
Ethiopia	December 7, 1942
*Fighting France	November 11, 1941
*Greece	March 11, 1941
Guatemala	May 6, 1941
*Haiti	May 6, 1941
*Honduras	May 6, 1941
Iceland	July 1, 1941
*India	November 11, 1941
*Iran	March 10, 1942
Iraq	May 1, 1942
*Liberia	March 10, 1942
Luxembourg	January 1, 1942
*Mexico	May 6, 1941
*Netherlands	August 21, 1941
*New Zealand	November 11, 1941
*Nicaragua	May 6, 1941
*Norway	June 4, 1941

RESTRICTED

<u>COUNTRY</u>	<u>DATE</u>
Panama	May 6, 1941
Paraguay	May 6, 1941
*Peru	May 6, 1941
Philippines	June 10, 1942
*Poland	August 28, 1941
Saudi Arabia	February 18, 1943
*South Africa	November 11, 1941
*Turkey	November 7, 1941
*United Kingdom	March 11, 1941
*U.S.S.R.	November 7, 1941
*Uruguay	May 6, 1941
*Venezuela	May 6, 1941
*Yugoslavia	November 11, 1941

The responsibility of the War Department in the administration of the Lend-Lease Act was promptly recognized in a letter from the Secretary of War to The Adjutant General, the contents of which were transmitted to the Chiefs of Arms and Services and to the Divisions of the War Department General Staff.³ This letter authorized the establishment of a Defense Aid Division in the Office of the Under Secretary of War to coordinate War Department activities, route requests for lend-lease aid to technical committees for screening and recommendations, and to authorize procurement and transfer of the supplies and equipment. The technical committees, referred to above, were known as Defense Aid Requirements Committees, the principal function of which was the determination of materiel requirements by type, quantity, and destination. Such committees were established for Ordnance, Chemical Warfare, Signal Corps, Engineers, and Quartermaster. The omission of the Medical Department excluded it from early discussions of concepts, policies, and procedural planning; and, as a result, the efficiency of the Department in lend-lease operations was hampered for a short period.

On the level above the War Department, responsibility for administering the Lend-Lease Act was assigned to the newly-created Division of Defense Aid Reports, Office for Emergency Management.⁴ This was superseded in October 1941 by the Office of Lend-Lease Administration, which was authorized to approve requests from lend-lease nations, issue procurement instructions, obtain priorities for critical materials, expedite shipment, and keep detailed records of all transactions.⁵

To discharge the Medical Department's duties in regard to lend-lease, a Defense Aid Sub-Section was established in the Finance and Supply Division, Office of The Surgeon General, staffed by one officer and four civilian employees and charged with the duty of procuring and transferring all medical

RESTRICTED

supplies furnished by the War Department under lend-lease.⁶ At this time (summer of 1941) a Defense Aid Medical Requirements Sub-Committee was added to the technical committees previously referred to, thus giving the Medical Department a voice in policy decisions on the War Department level.⁷

The first implementation of the Lend-Lease Act on the part of the Medical Department involved the supply of 2,000 standard litters as directed in a memorandum from the Secretary of War on April 9, 1941.⁸ These litters were transferred from regular depot stocks to the United Kingdom for probable retransfer to Yugoslavia, and the cost was to be charged against the initial lend-lease appropriation. No further demands were made on the Medical Department until July 1941, when Chinese requisitions were received for \$1,200,000 worth medical supplies to be used in connection with the construction of the Burma-Yunnan Railway. At about the same time the United Kingdom presented requisitions for field equipment to the value of \$950,000. These two requirements put the Office of The Surgeon General in "the Lend-Lease business."⁹

During this early period, storage and issue activities for medical lend-lease were conducted in depot space provided at Shamokin, Pa., Voorheesville, N.Y., and Marietta, Pa., and to the latter depot all such activities were transferred by July 1942.¹⁰ In December 1942 the Sharonville Engineer Depot provided space for lend-lease operations. This installation was succeeded, in August 1943, by the Louisville Medical Depot, which continued until the end of the war as the only depot engaged in international aid activities. The many preliminary activities were of course conducted by the Office of Lend-Lease Administration, the Defense Aid Division, OUSW, and the Defense Aid Sub-Section in the Office of The Surgeon General. These operations involved, for the Medical Department, the following steps:

1. Receipt of requisition from Defense Aid Requirements Committee for recommendations of the medical sub-committee;
2. Identification of the materials on the requisition in terms of the Medical Department Supply Catalog or recognized commercial terminology;
3. If to be recommended for procurement, computation of estimated cost (catalog price, plus 25 percent for contingencies and overhead, plus 10 percent for transportation);
4. Receipt of allotment of funds from Budget.

RESTRICTED

RESTRICTED

Officer, War Department, together with authorization to procure;

5. Purchase requisitions drawn and forwarded to appropriate procurement depot, with consignment specified to defense aid storage depot;
6. Authorization received from the Secretary of War, through the Defense Aid Division, to effect transfer to the foreign government;
7. Shipping instructions requested from the foreign government and forwarded to the defense aid depot for action.

The foregoing procedure proved to be satisfactory for the small operations then transpiring, except for step 4. Since a specific allotment of funds was made to cover each requisition, it was necessary to make numerous sub-allotments within the Office of The Surgeon General and to extend sub-allotments to each procurement and receiving depot which participated, in order that all costs occurring in connection with each requisition could be charged against the specific allotment provided for that purpose. In addition, materials available in regular depot stocks could not be utilized and subsequently replaced, for the allotments contained a clause declaring that "None of the funds herein allocated may be used to reimburse appropriations of the War Department for the value of materials on hand and used for work herein authorized, . . ." It was necessary, also, to maintain the identity of each requisition throughout all stages of procurement, storage, and transfer. In regard to procurement operations alone, this entailed the placing of as many contracts for the same item as there were requisitions calling for that item. Thus the quantities of an item could not be "lumped" to obtain the efficiency and economy of bulk purchasing. In storage operations, this requirement made it necessary for depot employees to segregate, on the basis of requisitions, all supplies received for defense aid. The aspirin tablets procured to alleviate headaches in the United Kingdom could not mingle with aspirin tablets purchased to achieve the same end in Russia, lest funds allocated to relieve the suffering of an English soldier should be accidentally diverted to the soothing of migraine beyond the Volga.

Another cumbersome feature of early operating procedure was the type of records it was necessary to establish and maintain, based upon detailed reports from defense aid depots, in order to comply with accounting requirements and to prepare numerous reports prescribed by the Division of Defense Aid Reports, Office for Emergency Management. These

RESTRICTED

RESTRICTED

reports, fourteen in number, dealt with the distribution of appropriations, allotments, and expenditures; analysis of expenditures; schedule of obligations; statement of defense articles transferred; property, rights, and privileges received from foreign governments; and related matters. The authority requiring these reports, apparently, had not contemplated or recognized the tremendous variety of medical items sooner or later to become involved in lend-lease operations, for the preparation of the reports required current information in the following categories on each item of each requisition:

1. Procuring depot
2. Receiving depot
3. Appropriation chargeable
4. Purpose number against which obligation is chargeable
5. Quantity authorized
6. Quantity contracted
7. Contractor and location of plant
8. Contract number
9. Date of contract
10. Priority or preference rating number
11. Type of procurement
12. Delivery schedule (quantities by date)
13. Unit price
14. Deliveries from contract
15. Date of delivery
16. Receiving report number
17. Transfers out
18. Date of transfer
19. Shipping ticket number
20. Weight of transfers out
21. Cubic displacement of transfers out
22. Stock on hand

Material for these reports was compiled by International Business Machines. But as the volume of individual requisitions grew, many of which contained several hundreds of items, and as quantities of individual items became so large that it was necessary to place several contracts to procure the full quantity, the preparation of the reports became most complex and time-consuming. Moreover, since a given item appeared on many requisitions undergoing action simultaneously, extensive analysis was required to supply information on total quantities of that item or groups of related items involved in lend-lease activities at a stated time. To speed the compilation of these reports a supplementary record was established, the material for which was accumulated by item rather than by requisition. By the fall of 1942, when it became possible to discontinue this record, approximately twelve full-size file drawers of 12"x16" cards had been accumulated.¹¹

RESTRICTED

~~RESTRICTED~~

The foregoing paragraphs cover the basic policies and procedures of lend-lease operations within the Medical Department during the period March-December 1941. Only three countries (United Kingdom, China, and Russia) received aid during 1941, and the dollar value of medical supplies transferred was very small, amounting to only \$276,009.¹² When the year ended, the Defense Aid Sub-Division was staffed by two officers and seven civilians.¹³

The entry of the United States into the war had no immediate effect upon lend-lease operations, except for a very brief suspension of shipments. This suspension lasted only two days for non-standard items and four days for standard items. The first few months of 1942 produced no major changes in procedure; but as the volume of transfers increased, there was an elaboration in the methods employed in the presentation and establishment of requirements. It is appropriate at this point, therefore, to describe the procedures in use during the spring of 1942, one year after the passage of the Lend-Lease Act.

Lend-Lease beneficiary governments, at the beginning of each year, submitted to the Defense Aid Sub-Division, SGO (through the International Division, SOS) estimates of total requirements for the forthcoming calendar year; and from time to time they filed specifically numbered "spot requisitions" for requirements which were unforeseen and therefore not included in the yearly programs. Both types of requirements were first subjected to a process of "coordination," which involved the identification of each item by reference to the Medical Supply Catalog, International Aid Nonstandard Catalog, and other lists of medical supplies and equipment. After this "coordination" had been accomplished, the yearly programs were forwarded to the Requirements Division, SGO, for incorporation into the Army Supply Program. Although specific War Production Board clearance on the yearly programs was not required, representatives of that agency were frequently consulted for advice as to availability.

"Spot requisitions" were subjected to a detailed analysis upon receipt, to determine the cost and delivery schedule and to ascertain the exact quantities of critical raw materials required. The Medical Sub-Committee, of the International Supply Committee,¹⁴ discussed the requisitions and made its recommendations to the parent committee. When a requisition was thus approved, the International Division, SOS, forwarded to the Medical Department the authority to procure and transfer the medical supplies and equipment. Purchase authorizations were then prepared and sent to the appropriate procurement office, which made contracts for the required supplies. Deliveries from the contractors were made to the defense aid depot, and there were ware-

RESTRIC^{TED}

housed by requisition numbers so that the identity of materials procured against each requisition could be maintained throughout the successive stages of procurement, storage, and issue. When all the material for a given requisition had been delivered, or a sufficient portion thereof to warrant a shipment, the depot notified the Office of The Surgeon General, and, upon receipt of the shipping instructions requested from the foreign government, the depot was directed to proceed with the shipment.¹⁵

During this period (the spring of 1942) the increasing volume and urgency of lend-lease requirements produced efforts to simplify procedures throughout the War Department. One notable result was a gradual liberalization of accounting requirements, which made it possible for the Medical Department to perform its defense aid duties with less effort and with more effect. The specific fund allocation, which required the segregation of requisitions, was eliminated; and in its place "Master Procurement Authorities" were substituted which were applicable to the requirements of all foreign governments approved at one time. Residues of previous fund allotments were converted into an "Undistributed Allocation Balance" and applied to new defense aid needs. The utilization of surplus Army stocks was permitted, and provision was made for the reimbursement of War Department funds. In addition, the Medical Department was authorized to include lend-lease requirements in its budget estimates, thus permitting the "lumping" and scheduling of procurement in an economical and efficient manner.¹⁶

As the year 1942 progressed, the Medical Department found itself being daily presented with "spot requisitions" involving large quantities of urgently needed supplies, but it was receiving very few long-range programs from foreign governments, on the basis of which it could plan and procure against future needs. In the meantime the Burma Road had fallen, and transport into the interior of China was at a virtual standstill. As a result, supplies procured for the Chinese account were "backing up" in the defense aid depot to such an extent that warehousing by individual requisition became physically impossible. At this point, when it was utterly impracticable to adhere to established operational procedures, authority was obtained to adopt more feasible methods.

In August 1942 the International Division,¹⁷ SGO, presented recommendations to the International Division, SCS, which proposed a new procedure for lend-lease medical operations. The Medical Department desired authority to establish a large stockpile of miscellaneous medical supplies, upon which it could draw in filling the "spot requisitions" of foreign governments. The proposal was

~~RESTRICTED~~

approved in September 1942, and the procurement of approximately \$60,000,000 worth of medical supplies was promptly initiated.¹⁸ In compiling a list of materials for this stockpile, Medical Department officers were guided by requisitions previously received from foreign governments and by qualified technical opinion as to what would be required in the future.¹⁹ In addition to new procurement, all materials previously procured against individual requisitions, but not yet shipped, were consolidated and placed in the unobligated stockpile, withdrawals from which were effected only by assignments receiving the approval of the Munitions Assignment Committee (Ground). This new procedure effected no change in coordinating, analyzing, and approving yearly programs and "spot requisitions" submitted by foreign governments, but it did produce a most important change in procurement procedure. In the future, it became possible to accumulate requisitions and to negotiate bulk contracts for the total quantities of all items needed. The new stockpile, moreover, introduced a large measure of flexibility into all Medical Department supply operations, for numerous urgent and unforeseen needs of United States troops were met by drawing upon this accumulation of supplies.²⁰

As early as the fall of 1942, efforts were made to distinguish between civilian and military lend-lease requirements. From the inception of the program, all requests for medical supplies had been accepted for action by the War Department and treated as military requirements, without regard to the eventual military and civilian use. This permitted the application of military priority ratings to the procurement of materials for civilian use abroad, while civilian needs in the United States received a much lower priority. After lengthy discussions between the War Department and the Office of Lend-Lease Administration,²¹ the latter issued an order directing that after January 1, 1943, the two types of requirements be distinguished and treated separately. To implement this directive, the International Division, SGO, supplied figures on all unfilled requirements for medical supplies (except British requirements, which were furnished directly to OLLA by the British Ministry of Supply Mission) and also reported stocks on hand and quantities due in from outstanding contracts. In the meantime, the foreign governments filed all new requirements for the calendar year 1943 with OLLA, through the International Division, ASF, and all requirements thus filed were separated into civilian and military categories. OLLA considered as 100 percent military all unfilled 1942 requirements and the 1943 requirements for Russia, China, Latin American nations, and the British forces in the field. Other British programs, as submitted by various parts of the empire, were divided on a percentage basis. All other requirements were classified

~~RESTRICTED~~

RESTRICTED

as 100 percent civilian. Stocks on hand and quantities due in from procurement were to be applied first against military requirements, with the residues to be used to satisfy civilian requirements. This comprehensive statement of requirements and assets, known as the "OLLA Control Books," was finally presented to the International Division, SGO, in March 1943. A detailed review of these books revealed that some of the 1943 programs had not been carefully screened and that quantities obviously designed for civilian use were included as military requirements. In addition, procurement authorizations so frequently departed from programmed requirements, were forwarded at such sporadic intervals, and were amended so often, that by the summer of 1943 not more than 25 percent of that year's requirements for medical supplies had been placed under contract. Had it not been for the stockpile authorized during the previous year, only a thin trickle of lend-lease medical supplies could have been shipped during 1943.²²

This unsatisfactory state of affairs provoked renewed discussions between the War Department and OLLA which culminated in a new agreement, defining in detail the functions and responsibilities of the various lend-lease agencies.²³ In effect, OLLA was eliminated from any participation in the processing of military requirements. Its responsibility was confined to presenting civilian requirements, after clearance with the War Production Board, and ordering shipment of the supplies as they became available. The International Division, SGO, was charged with control over the procurement of military requirements and the maintenance of any records needed to exercise this control. This change produced a distinct improvement, but important difficulties still remained. OLLA continued to issue procurement authorizations sporadically and in some cases for only a small part of the total civilian requirements for which approved programs had been received. It was necessary, therefore, for the Inventory Control Branch, SGO, to deduct lend-lease civilian requirements which came up in a "buy position" under the automatic stock control procedures in effect. This cumbersome extra step was eliminated in November 1943, when the Office of The Surgeon General received from the International Division, ASF, a "blanket" procurement authorization applicable to all programmed civilian requirements not previously authorized for procurement.²⁴

In the meantime, the OLLA Control Books had become obsolete, and a strong need was felt for a reliable and current record of total lend-lease requirements. Accordingly, all known requirements, including spot requisitions and yearly programs, were submitted to the Machine Records Branch, SGC, for tabulation. The result was a consolidated EAI listing by item, divided into 1943 and 1944 requirements,

RESTRICTED

RESTRICTED

subdivided into military and civilian accounts, and coded to indicate the unfilled requirements for each item by each of the foreign governments. This listing was then subjected to a comprehensive and detailed review by CLLA, the International Division, ASF, and the British Ministry of Supply Mission for the purpose of eliminating any requirements which could not be justified. By the fall of 1943 the EAM listing had been thoroughly screened; and, with subsequent additions, it provided a reliable guide to lend-lease requirements during the remainder of the war.²⁵

The changes and developments related in the foregoing paragraphs gradually formed an operating procedure, within the framework of which the obligations of medical lend-lease could be discharged. By the spring of 1944 this procedure had been developed to such a degree that only minor changes were made during the remainder of the war. It is appropriate at this point, therefore, to present a brief description of the procedural methods employed in the Office of the Surgeon General during 1944 and 1945.

The first important duty of the Analysis Branch (of the International Division, SGO) was the examination of informal lists of requirements and draft requisitions, which were presented by foreign governments. This involved the identification of items requested, the insertion of proper nomenclature and stock number, and the recommendation of substitutes.²⁶ After this preliminary "screening", the lists were returned to the foreign governments, which then submitted them to the International Division, ASF, as formal programs. Draft requisitions were returned directly to the International Division, ASF, for submission as formal requisitions.

Formal programs and requisitions were screened against "excesses chargeable to Lend-Lease governments" and, if appropriate excesses were not found, were submitted to the Inventory Control Branch, SGO, to determine which items would require new procurement. Items requiring procurement were submitted to the Production Division, ASF, to ascertain the availability of the quantities requested and to provide for allocation if necessary. After total costs were computed and the quantities of controlled materials estimated, the programs and requisitions were returned to the International Division, ASF, with recommendations as to the procurability and suitability of the items requested. When approved by the International Division, ASF, the quantities were added to the Army Supply Program and thus were authorized for purchase.

The final important duty of the Analysis Branch was the maintenance of the International Requirements Record.

RESTRICTED

RESTRICTED

Compiled monthly by the Machine Records Branch, SGO, this record performed the following services:

1. It provided current information on gross requirements approved within the calendar year, by item and country, together with cumulative assignments made against these requirements. In addition, it showed the net balance due, as well as the stocks on hand in the Lend-Lease Military and Lend-Lease Civilian accounts.

2. It furnished currently adjusted lend-lease requirements to the Stock Control Division, SGO, for inclusion in the Consolidated Stock Report and the Army Supply Program.

3. It afforded a simplified means for recording requested reductions in requirements. The requirement was allowed to stand, but it was coded in such manner as to indicate that the quantity in question was actually in excess of "firm" requirements.

The Assignments Branch had as its first duty the registry of requisitions and programs for the purpose of identifying them in the process of assignment and shipment. An SGO shipping order was given to each new requisition or program, and the number thus given became the permanent file reference for the requirement.

This branch was charged, in addition, with the determination and presentation of bids for available stock before the medical sub-committee of the Munitions Assignment Committee (Ground). A monthly military International Requirements Record was compiled, which showed the bids of each beneficiary government. At the sub-committee meeting, these bids were routinely approved when stock was available to satisfy all claimants; but when the supplies were inadequate to meet all unfilled requirements, the sub-committee allocated the available stock on the basis of urgency of need. A copy of the International Requirements Record was transmitted to the Munitions Assignment Committee (Ground), which authorized the transfer of the supplies to the foreign governments.

The Assignments Branch then prepared the necessary shipping orders, posted them to sequence records for permanent cross-reference, and transmitted them to the appropriate depots for action. At every stage of the shipping process, from the time supplies left the depot until they were loaded aboard ships, the Assignments Branch received information on the shipments and maintained comprehensive records on them. It was possible, therefore, to respond to inquiries from beneficiary governments without frequent reference to depots and ports.

RESTRICTED

RESTRICTED

When "floated" copies of shipping documents had been received, they were transmitted to the Fiscal Division, SGC, which maintained accounts on all international aid transactions and charged the beneficiary governments with the cost of the medical supplies furnished.²⁷

The foregoing procedure was confined to military lend-lease shipments, for in 1943 the Medical Department had ceased to have any responsibility for civilian lend-lease, except to act as a purchasing agent for the Foreign Economic Administration. Early in 1944 it became apparent that even this limited responsibility was interfering with duties which were more closely related to the winning of the war. The FEA had presented to the Medical Department a program which involved the purchase of \$66,000,000 worth of medical supplies. This material was pouring into the depots from contractors' plants, and there was little likelihood that the bulk of it would move out before the end of the war, for the civilian program was a part of post-war rehabilitation. In addition, there was reason to believe that relief requirements would grow with the passage of time, that they would continue beyond the war period and would burden the military establishment while it was undergoing demobilization. The War Department proposed, therefore, that The Surgeon General be relieved of all responsibility for the procurement, storage, and issue of medical supplies programmed by FEA, and that these activities be transferred to appropriate civilian agencies not later than December 31, 1944.²⁸ The general terms of this proposal were promptly accepted by FEA, with reservations in regard to the time limit,²⁹ and representatives were named by the agencies involved to formulate plans for the transfer. Protracted delays by FEA then ensued, which were finally ended by the War Department in the fall of 1944, when it forced the issue by announcing that additional civilian requirements necessitating new procurement would not be accepted and proposing to release one of its medical depots to the FEA. Negotiations were promptly begun, and two basic agreements were soon reached. (1) Commencing October 15, 1944, the shipment of all medical supplies programmed by FEA for civilian rehabilitation would be called forward through the Procurement Division, U.S. Treasury Department. Shipments to actual participants in the civilian lend-lease program would be handled, as in the past, on FEA shipping orders. Now civilian requirements of any type would be referred to the Treasury Department for procurement, although the War Department would "screen" the requirements and would accept any portion that could be filled from excess stocks. (2) The Medical Department would release a suitable depot, complete with equipment and civilian operating personnel, to the Treasury Department as operating agent for FEA.

RESTRICTED

RESTRICTED

After extensive negotiations, the Toledo Medical Depot was declared surplus and was transferred to the Treasury Department, effective May 1, 1945.³⁰ During the interim (from November 1944 to May 1945), the Medical Department continued to operate the depot, but Treasury Department representatives were assigned to participate in its administration, pending the actual transfer of accountability and title. An extensive assembly program for civilian rehabilitation was continued at Toledo until the end of December 1944. Since the depot was to be transferred to the Treasury Department in May 1945, it became necessary to clear medical department stocks from the warehouse areas and replace them with FEA stocks then in the Louisville Medical Depot. At first it was estimated that this transfer would involve the movement of from 1,200 to 1,500 carloads, but a "paper transfer" of stocks greatly reduced the size of the contemplated movement. FEA supplies at Louisville were credited to the Army or military lend-lease accounts, while Medical Department supplies at Toledo were transferred to Treasury Department accountability. After these paper transfers were made, the movement of only 800 carloads of supplies completed the transfer and relieved the Medical Department of all responsibility for civilian lend-lease just a few days before the end of hostilities in Europe.³¹

Some of the problems encountered in the administration of medical lend-lease have been briefly discussed in preceding pages; but there were other difficulties, less directly related to procedure, which were important enough to merit a more extended treatment.

The administration of lend-lease was a "war baby" without antecedents and, so far as anyone could tell, without hope of posterity. It was born and grew to maturity within the short space of four years. For the expansion of the Army and the waging of a war beyond the seas, the light of precedent and experience offered some guide. But lend-lease was without precedent. It was constructed by inexperienced hands to meet pressing and changing needs. The result was an almost continuous establishment, revision, rescission, and re-establishment of offices and policies, in and out of the War Department, which appeared frivologically inconsistent to those at the lower operating levels. Within the Medical Department, lend-lease was regarded, with restrained fondness, as a problem child. A certain degree of inertia and passive opposition to the general idea of international aid, among those not directly involved in its administration, was evident throughout the program. Lend-lease matters referred to other parts of the Medical Department were apt to receive a low priority since they originated in the "International Gift Society" as the International Division, SGO, was sometimes called.³²

RESTRICTED

RESTRICTED

In truth, there is reason to believe that some countries looked upon medical lend-lease as a grab-bag filled with gifts for the needy. In the early days, before any distinction between military and civilian requirements was recognized, all lend-lease materials were procured under a military priority. This created in beneficiary governments a strong temptation to fill civilian needs which were unconnected with military operations. Even after the division of military and civilian requirements, occasional abuses occurred which left the impression that the United States was looked upon as a lush source of material wealth. For example, Russia continued throughout the war to enjoy a 100 percent military classification on all her requirements, receiving tremendous quantities of many items which were designed primarily for civilian use. Objections on the part of the International Division, SGO, were promptly overridden by higher authority. During 1943 Australia was allowed to classify her artificial teeth requirements as 100 percent military. She asked for and received a quantity which was in excess of total United States Army issues for that year. When it is considered that the total population of Australia was somewhat smaller than the United States Army, it is probable that the shipments of 1943 amply supplied the Australian forces with artificial teeth. But that country promptly submitted another requisition for the following year's needs, which were estimated at 75 percent of the quantity received in 1943. The second requisition was disapproved on the recommendation of the International Division, SGO.³³ The British had a 100 percent military classification for all requirements of x-ray equipment, until late in 1944, on the strength of the argument that their distribution system did not permit segregation for military and civilian use. Since much of this equipment was of an elaborate type not essential for military use, the International Division, SGO, interposed vigorous objections and was finally able, in July 1944, to distinguish civilian from military requirements. At this time, the American x-ray industry had on its books domestic civilian orders 16 months old and commercial export orders antedating Pearl Harbor, while British civilians were enjoying an AA-1 military priority for their x-ray needs.³⁴

In seeking to obtain lend-lease medical supplies in excess of military requirements, the Republic of Ecuador proved that small nations can nourish large hopes. That country presented a 1943 military program requiring medical supplies and equipment for 50 infantry and 20 cavalry divisions. Upon the recommendation of the International Division, SGO, this ambitious program was disapproved; and plans were made to provide a quantity of medical supplies more directly related to the size of Ecuador's army -- five divisions.³⁵

RESTRICTED

RESTRICTED

Another major problem in early lend-lease operations resulted from wide variations in medical practices, customs, and terminology throughout the world. The identification of some items required by the beneficiary governments was extremely difficult because of language barriers, inadequate specifications, and technical incompetence (on the part of the foreign governments' representatives) to discuss and agree upon interpretations of stated requirements. This was especially troublesome in the screening of Russian requirements, for the Soviet Mission usually insisted upon materials being furnished exactly as requested, although the technical description of the desired item was meaningless to American officers and the Russian officials were unable to furnish clarification. When additional information was received which suggested the advisability of substitutes, the Soviet Mission was reluctant to approve the change. During the last eighteen months of lend-lease operations, several competent Russian physicians were assigned to the Soviet Mission. This change produced a distinct improvement, although relations were far from perfect at the war's end.³⁶

After the items were identified, other difficulties developed which were related to the variety of medical practices. There were requirements for large quantities of medicines and equipment which were difficult to procure, either because such supplies were obsolete in the United States or because they had never been produced and used in great volume. Very little calomel was used by American troops, but tremendous quantities were procured and shipped to foreign governments. Although widely used in the United States, insulin was employed in far greater quantities abroad. In x-ray equipment, the same problem was encountered. On one occasion the Russian government requested 3,000 x-ray tubes of a type which had not been manufactured in the United States for 25 years. Since it was obviously impractical to tool up a factory to produce these obsolete tubes, a new type was shipped which, it was thought, could be used in the Russian machines.³⁷

In the Medical Department Supply Catalog, approximately 7,000 standard items are listed, but even this collection of medical supplies and equipment was not adequate to cover the needs of lend-lease governments. It became necessary to compile an "International Aid Non-standard Catalog," consisting of items employed for medical purposes but not standard with and not used by the Medical Department. This gives some indication of the extent of medical lend-lease operations, but perhaps a clearer view can be presented by a statement of the dollar-value of supplies and equipment shipped abroad. In the following table military lend-lease shipments for the period March 11, 1941 to September 3, 1945 are given by calendar years:

Military Lend-Lease (Medical)

Country	1941	1942	1943	1944	1945	Totals
Belgian Congo			\$ 115.	\$ 115,000.	\$ 51,000.	\$ 166,000.
Bolivia			\$ 180,000.	248,000.	143,000.	115.
Brazil			\$ 30,000.	84,000.	23,000.	571,000.
Canada		\$ 12,000.				149,000.
Chile				54,000.	7,000.	61,000.
China				1,706,000.	3,920,000.	11,421,000.
Columbia				152,000.	109,000.	261,000.
Costa Rica				200.	200.	200.
Cuba						
Dominican Republic				44,500.	300.	45,000.
Ecuador				15,500.	2,500.	18,000.
French Africa				287,000.	40,000.	438,000.
Greece				2,769,000.	1,950,000.	5,168,000.
Haiti				1,400.	1,400.	1,400.
Honduras				48,750.		50,000.
Iran				160.	160.	160.
Mexico				8,000.	139,000.	150,000.
Netherlands				59,000.	3,000.	150,000.
Nicaragua				49,000.	91,000.	150,000.
Norway				20,000.	13,000.	82,000.
Peru				15,000.	4,000.	19,000.
United Kingdom and Dominions	56,000.	4,007,000.	23,000.	19,000.	76,000.	118,000.
Uruguay				74,000.	203,000.	309,000.
USSR				28,000.		
Venezuela						
Yugoslavia						
Totals	\$276,000.	\$11,755,250.	\$30,520,315.	\$35,936,610.	\$26,754,350.	\$106,963,525.

RESTRICTED

There was no distinction between military and civilian lend-lease shipments until 1943. The foregoing table, therefore, includes an indeterminate quantity of civilian lend-lease for the 1941-1943 period. In the following table, civilian shipments are listed by calendar years for the period January 1, 1943 to September 3, 1945:

Country	Civilian Lend-Lease (Medical)			Totals
	1943	1944	1945	
Belgian Congo		\$ 87,000.		\$ 87,000.
Ethiopia		34,000.		34,000.
French Africa	\$ 61,000.	1,210,000.	\$1,940,000.	3,940,000.
Iran		1,250.		1,250.
Iraq		6,000.		6,000.
Saudi Arabia		6,000.	3,000.	9,000.
Syria		7,000.	370.	7,370.
Turkey	1,000.	180,000.		181,000.
United Kingdom and Dominions	127,000.	5,057,000.	2,407,000.	7,591,000.
Miscellaneous	7,000.	1,292,000.		1,299,000.
Totals	\$196,000.	\$7,880,250.	\$4,350,370.	\$12,426,620.

Other shipments for international aid, in addition to lend-lease, are set forth in the table below:

Agency	Shipments Other Than Lend-Lease			
	1942	1943	1944	1945
Russian War Relief Society	\$1,770,448.	\$3,241,253.	\$1,648,463.	\$ 834,264.
Procurement Division, U.S. Treasury			22,190.	20,435,709.
American Red Cross				
To USSR	3,553,330.	431,348.	45,189.	
To Greece		36,534.	3,955.	136.
To Eire	25,961.	136,428.	69,669.	
Totals	\$5,349,739.	\$3,845,563.	\$1,825,466.	\$21,270,109.

An examination of these tables indicates that the Medical Department procured, stored, and shipped lend-lease supplies valued at approximately \$120,000,000 and that it furnished other international aid supplies which had a value of about \$32,000,000. When the reader considers that the value of all medical supplies and equipment procured by the Medical Department was approximately \$1,000,000,000, it becomes clear that the entire international aid program represented an important fraction of total purchases.³⁸

RESTRICTED

~~RESTRICTED~~

NOTES FOR CHAPTER XI

¹Cited as Public Law 11 of the 77th Congress, "An Act to Promote the Defense of the United States."

²Asterisks indicate those governments to which shipments by the Medical Department were actually made. In 1944 shipments to Bolivia and Turkey were discontinued for diplomatic reasons.

³AG letter O20.1 (3-29-41) M-M, Confidential, subject: "Procedure Under the Lend-Lease Act" (filed under "Procedure," General Policy, International Division, Supply Service, SGO).

⁴Executive Order No. 8751, dated May 2, 1941.

⁵Ibid., No. 8926, dated October 28, 1941.

⁶This sub-section appears to have been established in July or August 1941. Before that time, the very small lend-lease operations required about 20 percent of one officer's time. (Lieutenant Colonel F. C. Tyng to Budget Officer of the War Department, July 15, 1941 [Record Room, SGO, 381.-1].)

⁷1st Ind. G-4/31691-1, 6-27-41, Confidential, subject: "BPC Requisition for Defense Articles No. 2837" (International Division, SGO, 723-2).

⁸WD 400.3295 (4-7-41) M-F, Confidential, subject: "Transfer of Defense Articles to the United Kingdom (Lend-Lease Act)" (International Division, SGO, "Procedure," General Policy).

⁹Major R. E. Wilson, "History of Medical Department Lend-Lease Activities" (April, 1946), pp. 6-7 (Historical Division, SGO, 319.-1). The author of this report was identified with Medical Department lend-lease operations for approximately four years and has accumulated a mass of valuable information. Much of the present chapter is based upon this report, which will be cited hereafter as Major Wilson, "Lend-Lease Activities."

¹⁰Annual Report of the Finance and Supply Service, 1942, p. 11 (Historical Division, SGO, 024.6-10).

~~RESTRICTED~~ 228

RESTRICTED

¹¹Major Wilson, "Lend-Lease Activities," pp. 8-12.

¹²Captain F. C. Little, "Historical Report of Lend-Lease Activities in the Office of The Surgeon General," July 22, 1943 (International Division, SGO, "Historical Data").

¹³Major B. B. Smythe to Major Peters, August 5, 1942 (International Division, SGO, "Historical Data").

¹⁴In 1942, the International Supply Committee superseded the Defense Aid Requirements Committees.

¹⁵Major Wilson, "Lend-Lease Activities," pp. 13-15.

¹⁶Ibid., pp. 15-16.

¹⁷Shortly before this date the Defense Aid Sub-Division was renamed the International Division.

¹⁸Director, International Division, SGO, to the Director, International Division, SOS, August 24, 31, 1942, subject: "Creation of Medical Department Lend-Lease Stockpile" (International Division, SGO, General Policy, "International Division, ASF"); Munitions Assignment Committee (Ground), Minute No. 889, 48th meeting, September 10, 1942.

¹⁹One of the supply officers later declared that the list was based upon "sheer guess as to what was likely to be called for in the future." Such uninhibited frankness in official reports is rare enough to merit serious and thoughtful consideration. In the present instance, however, it appears that an excess of candour has performed a disservice to the truth. Possessing more than a year's experience in supplying the needs of foreign governments, defense aid officers could base their estimates on something far more substantial than guesses. (See Lieutenant Colonel F. C. Little to the Administrative Assistant to the Chief, Supply Service, July 28, 1945 (International Division, SGO, "Historical Data").

²⁰It was necessary, however, for such withdrawals to receive the approval of the International Division, SOS (later ASF) and the Office of Lend-Lease Administration. (Annual Report of the International Division, Supply Service, SGO, 1944, p. 2 [Historical Division, SGO, 024.6-10].)

²¹Hereafter referred to as OLLA.

RESTRICTED

~~RESTRICTED~~

22 Major Wilson, "Lend-Lease Activities," pp. 23-25.

23 "Procedure for Handling Lend-Lease Medical Supplies," dated August 11, 1943.

24 SPLID 440 (November 17, 1943), November 23, 1943, subject: "Lend-lease Civilian Requirements for 1943 and 1944" (International Division, SGO).

25 Major Wilson, "Lend-Lease Activities," pp. 26-27.

26 Requirements for numerous non-standard items and materials were received so frequently that an "International Non-standard Catalog" was compiled for reference. This catalog listed the descriptions of the items presented by foreign governments, and translated these descriptions into commercial terminology which was adequate for procurement purposes.

27 Major Wilson, "Lend-Lease Activities," pp. 32-41.

28 Major General Lucius D. Clay to Mr. Leo Crowley, March 11, 1944 (International Division, SGO, "Lend-Lease Standard Operating Procedure -- Policy").

29 Mr. Leo Crowley to Major General Lucius D. Clay, March 23, 1944 (filed as in ibid.).

30 ASF Circular No. 164, Section VI, May 8, 1945.

31 It should be noted, however, that a large quantity of supplies was held at Louisville to maintain an uninterrupted flow of civilian lend-lease shipments. FEA had given assurances that these supplies would be "called forward" prior to December 31, 1944. But as late as September 1945 approximately 500 tons still remained in the FEA stock account at Louisville. (Major Wilson, "Lend-Lease Activities," pp. 44-49.)

32 Ibid., pp. 49-50.

33 SPMCY Memorandum dated December 8, 1943, subject: United Kingdom Requisition 65932 (International Division, SGO, Requisition 12476).

~~RESTRICTED~~

RESTRICTED

34 Correspondence filed with SGC Requisition 12885 (International Division, SGO).

35 SPI.CY Memorandum dated September 30, 1943, subject: "Ecuador 1943 Military Program" (International Division, SGO, filed under "International Division, ASF").

In discussing the abuses of medical lend-lease, the author has been aware that the maintenance of civilian health and well-being is related to military operations and that it is sometimes difficult to distinguish between military and civilian use. But even after the fullest allowances are made, it is apparent that large quantities of lend-lease medical supplies were diverted to uses which were only faintly connected with military operations.

36 Major Wilson, "Lend-Lease Activities," pp. 53-54.

37 Brigadier General Edward Reynolds' Address of September 19, 1945, pp. 34-35.

38 All figures on lend-lease and other international aid shipments are based upon tables appended to Major Wilson's "Lend-Lease Activities."

RESTRICTED
231

RESTRICTED

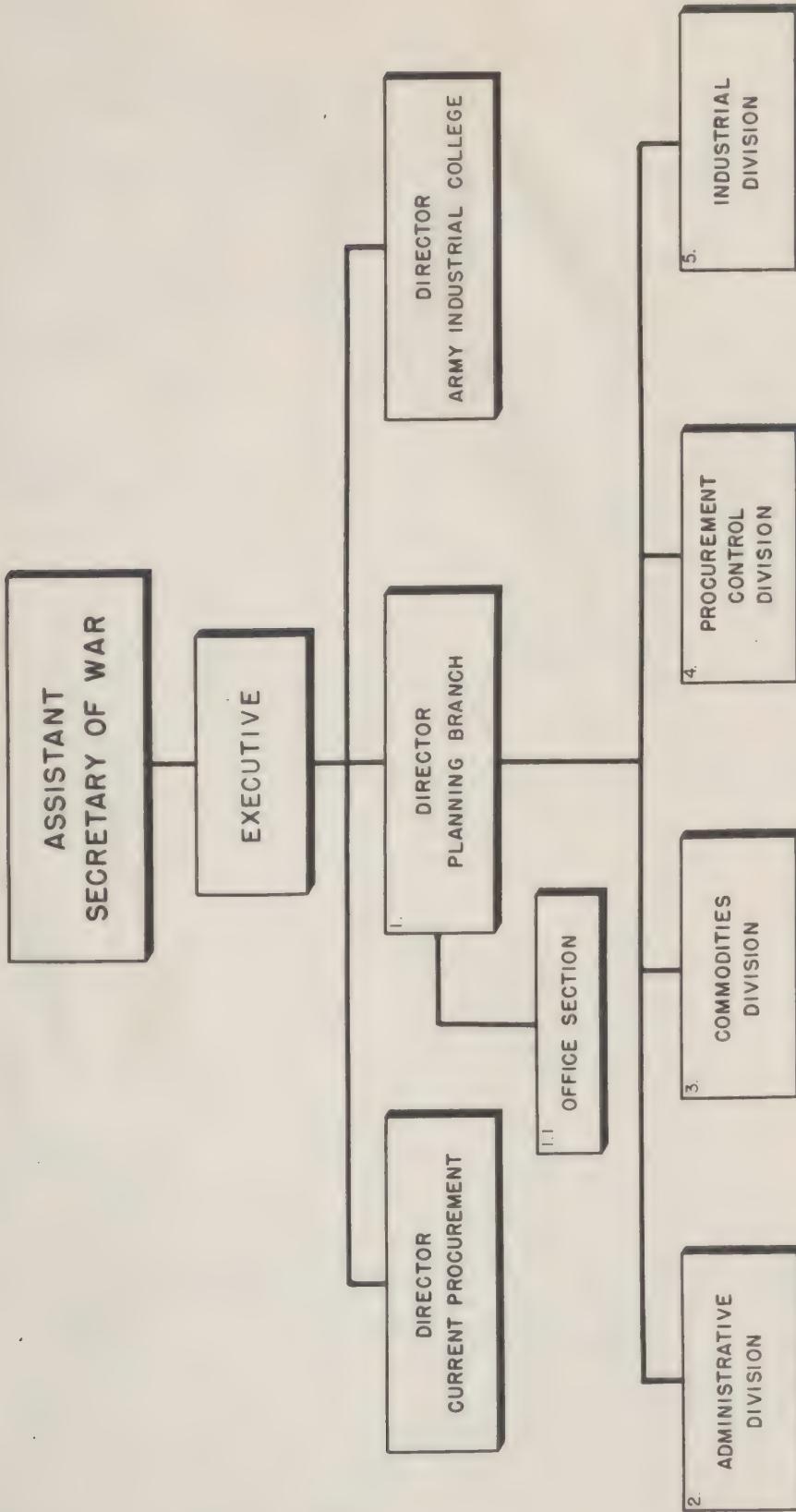
APPENDIX

RESTRICTED

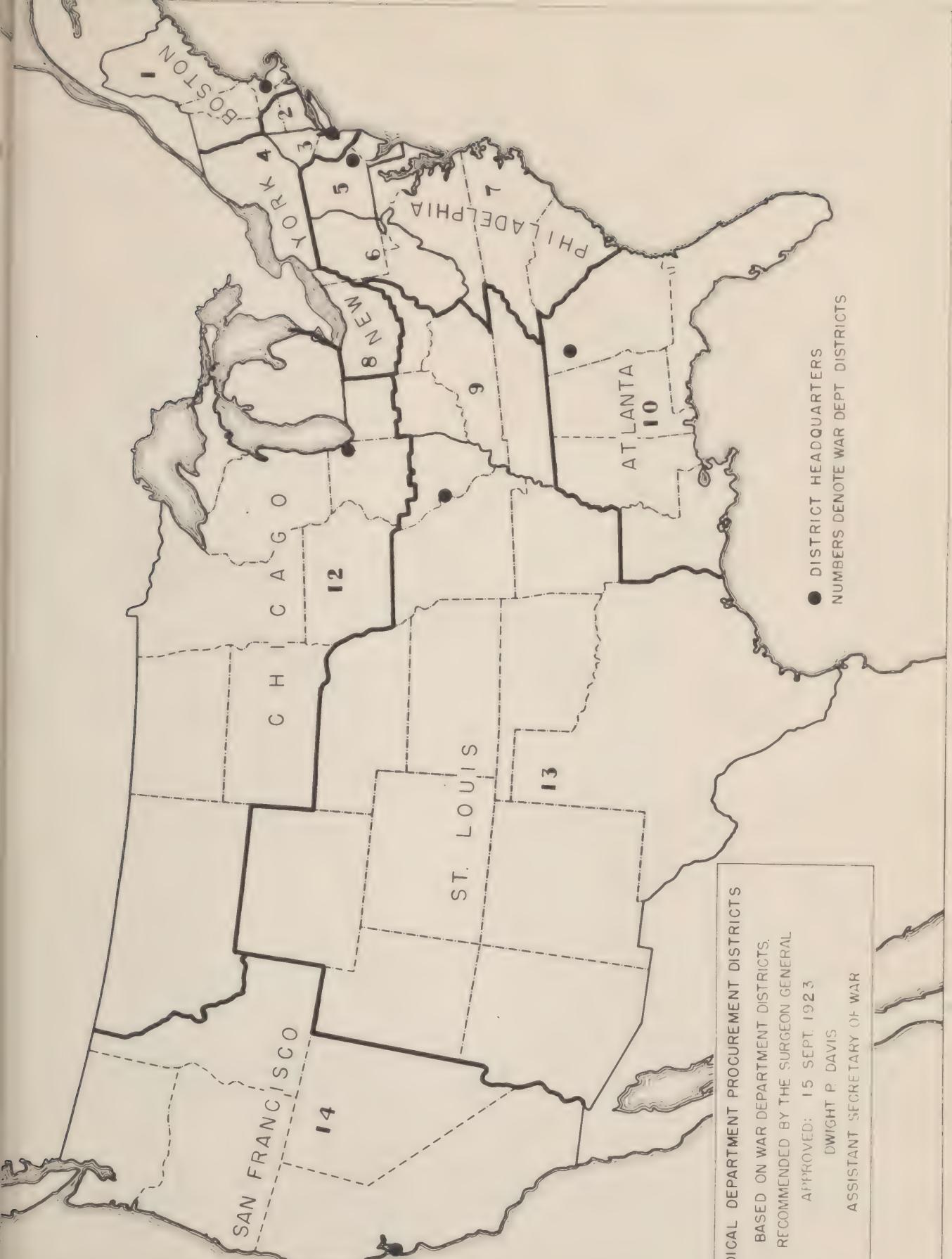
ORGANIZATION CHART

PLANNING BRANCH

OFFICE OF THE ASSISTANT SECRETARY OF WAR



O. A. S. W.
PLANNING BRANCH
OCTOBER, 1931
NO. 576



MEDICAL DEPARTMENT PROCUREMENT DISTRICTS

BASED ON WAR DEPARTMENT DISTRICTS.

RECOMMENDED BY THE SURGEON GENERAL

APPROVED: 15 SEPT. 1923

DWIGHT P. DAVIS

ASSISTANT SECRETARY OF WAR

Exhibit 3

The Medical Department War Reserve, 1924¹

<u>Unit Assemblies</u>	<u>Requested by</u>	<u>Approved by</u>
	TSG	TAG
General Hospital Units	48	48
General Hospital Expansion Units (50 beds each)	100	100
Station Hospital Units	78	78
Station Hospital Expansion Units (50 beds each)	500	360
Evacuation Hospitals	15	15
Surgical Hospitals	12	12
Convalescent Hospitals	1	0
Medical Laboratory, Army	1	1
Medical Laboratory, Com. Zone	1	1
Hospital Trains	27	0
Medical Supply Depots, Com. Zone	1	0
Medical Supply Depots, Army	1	0
Aviation Medical Laboratory	9	9
Medical Squadrons	6	6
Division Medical Headquarters	27	0
Medical Headquarters, Cavalry Division	6	0
Medical Regiments	32	32
Ambulance Companies, Animal Drawn	6	6
Veterinary Companies	6	0
Veterinary Evacuation Hospitals	3	0
Veterinary Convalescent Hospitals	1	0
Veterinary General Hospitals	8	2
Veterinary Station Hospitals	6	2

Dispensary Equipment:

Regimental	388	388
Battalion	1119	1119
Company	871	871
Dental	903	903
Veterinary, Large	140	140
Veterinary, Small	250	250
Flight Surgeon	103	103

Strategic and Critical Drugs

<u>Item No.</u>	<u>Item</u>	
1225	Iodine, U.S.P., crystal, ½ lb in bottle	30,307
1227	Iodine Swabs, 6 in box	470,231
1371	Quinine Sulphate, U.S.P. Crystals, 1 oz. in bot	13,101
1372	Quinine Sulphate, U.S.P. 200 mgm tab., 500 in bottle	39,362
		39,362

RESTRICED

RESTRICTED

<u>Item No.</u>	<u>Item</u>	<u>Requested by TSG</u>	<u>Approved by TAG</u>
1151	Codeine Sulphate, USP, powder, 1 oz. in bot.	8,710	8,710
1152	Codeine Sulphate, USP, 32 mgm tab. 500 in bot.	27,554	27,554
1229	Ipecac & Opium Powder, USP, $\frac{1}{2}$ lb. in bot.	4,848	4,848
1230	Ipecac & Opium Powder, USP, 324 mgm tab. 500 in bot.	43,702	43,702
1275	Morphine Sulphate, USP, powder, 1 oz. in bot.	2,396	2,396
1276	Morphine Sulphate, USP, 8 mgm hypo. tab., 20 in bot.	2,859,813	2,859,813
1277	Morphine Sulphate, USP, 130 mgm tab., 10 in bot. Vet.	4,370	4,370
1301	Opium Powder, USP, 2 oz. in bot	4,103	4,103
1325	Pill Camphor & Opium, 500 in bot.	62,345	62,345
1452	Tincture of Opium, USP, 1 lb. in bot.	16,696	16,696
1453	Tincture of Opium, Camphorated USP, 1b. in bot.	7,960	7,960

Front Line Dressings

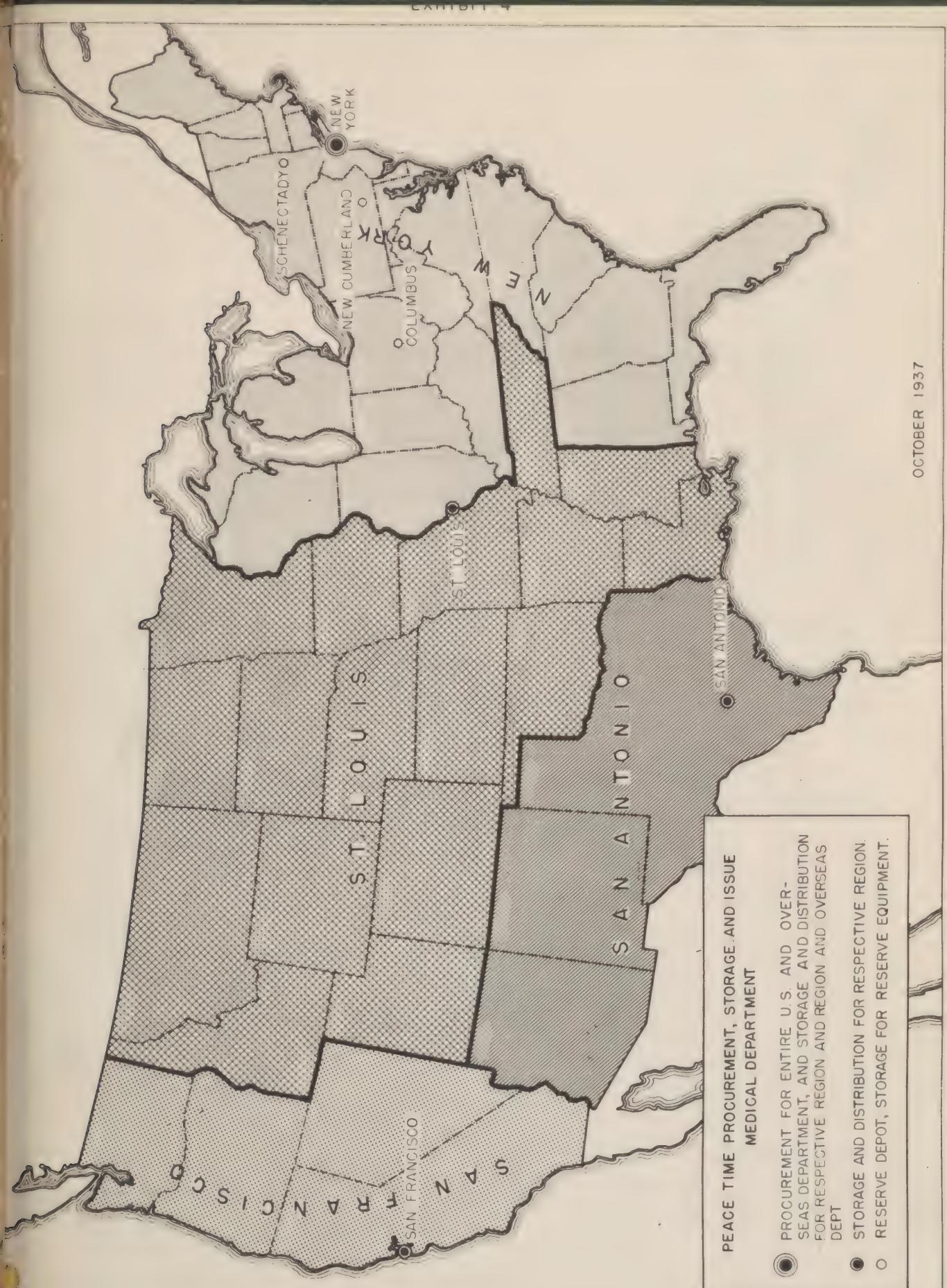
2018	First Aid Packet	1,786,000	1,000,000
2020	Front Line Packet No. 1	908,955	0
2021	Front Line Packet No. 2	940,600	0
2022	Front Line Packet No. 3	481,337	0
2028	Individual Dressing Packet	1,444,801	0

Surgical Instruments

9629	Case, Medicine, for M.O. belts	14,022	10,000
9645	Flasks for Belts, H. C.	144,922	50,000
9646	Flasks for Belts, M. O.	13,003	10,000
3046	Case, Instrument, M. O.	19,327	19,327
3047	Case Instrument, for Privates	178,541	100,000
	Case Instrument, (16 different kinds)	42,000	4,000
	Forceps, Surgical (84 different kinds)	189,783	20,000
	Knives, Surgical, (22 different kinds)	42,473	3,600
	Needles, Surgical (44 dif. kinds)	253,695	253,695
	Scissors, Surg. (16 dif. kinds)	55,117	10,000
	Syringe, Surg. (16 dif. kinds)	.96,553	8,000
	Syringe, Surg., needles for (10 different kinds)	141,728	60,000
	Surgical Instruments, all kinds other than above.	715,420	75,000

¹ Major General M. W. Ireland to The Adjutant General, April 18, 1924;
The Adjutant General to The Surgeon General, September 6, 1924
(Historical Division, SGO, 381.-1)

RESTRICTED



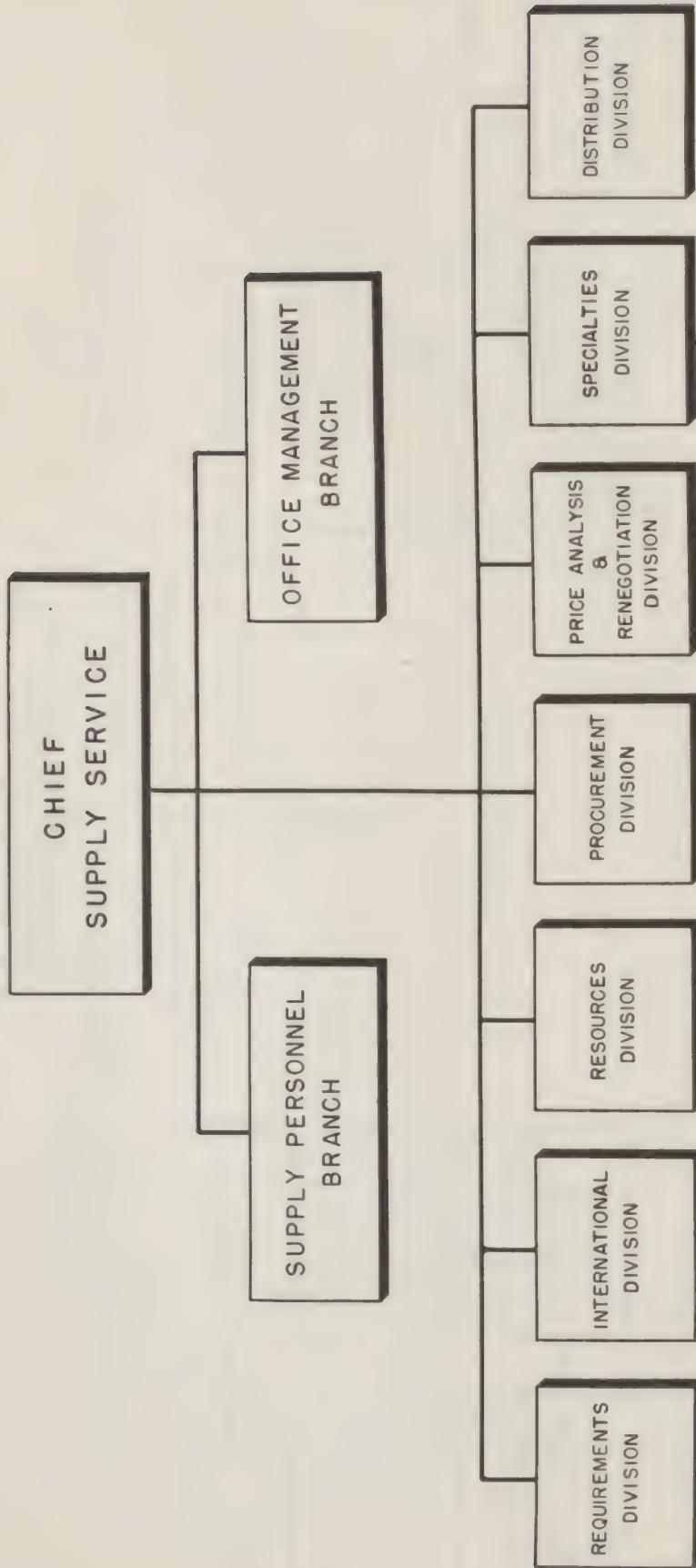
PEACE TIME PROCUREMENT, STORAGE AND ISSUE
MEDICAL DEPARTMENT

PROCUREMENT FOR ENTIRE U. S. AND OVER-
SEAS DEPARTMENT, AND STORAGE AND DISTRIBUTION
FOR RESPECTIVE REGION AND REGION AND OVERSEAS
DEPT

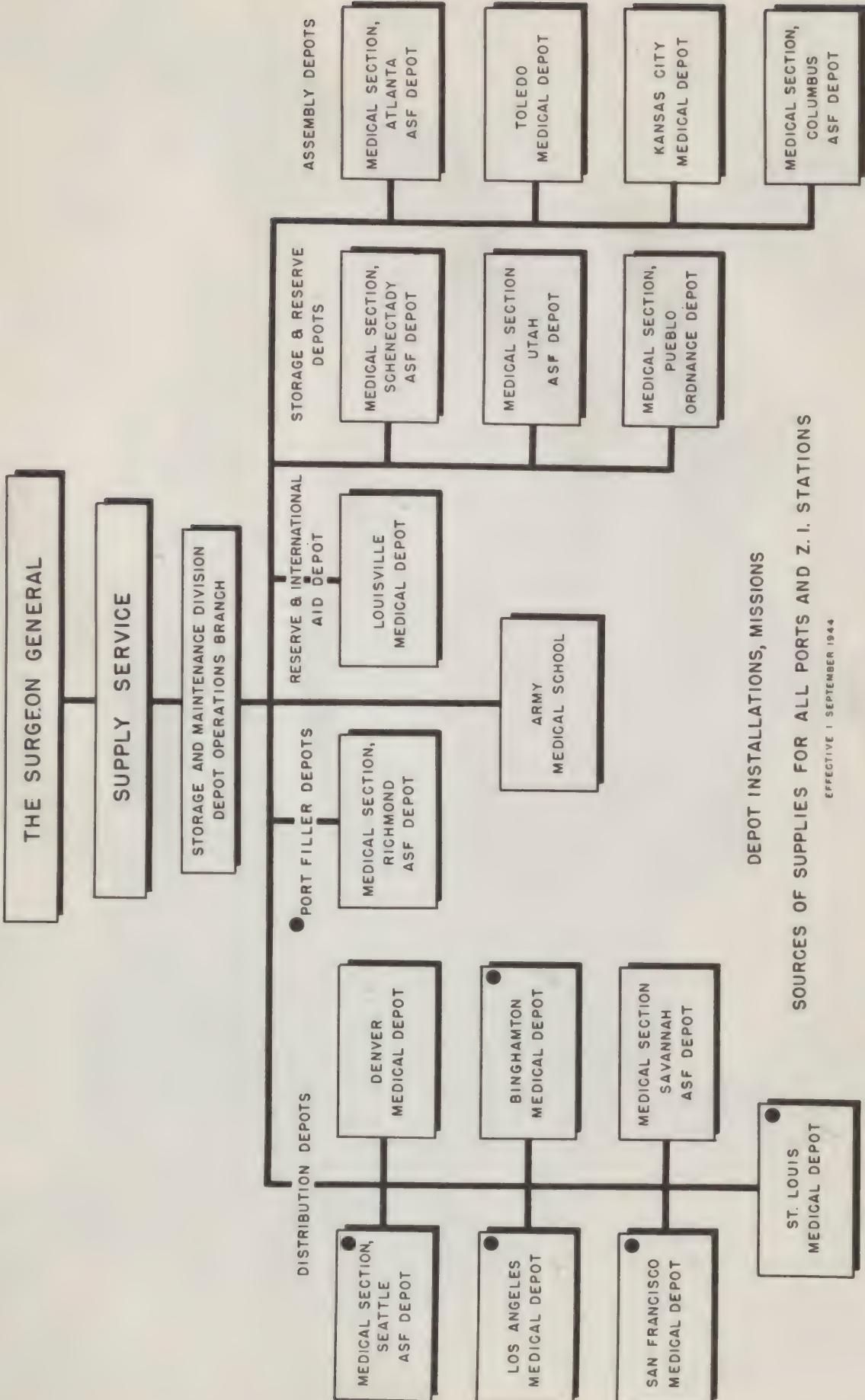
STORAGE AND DISTRIBUTION FOR RESPECTIVE REGION
DEPT

RESERVE DEPOT, STORAGE FOR RESERVE EQUIPMENT

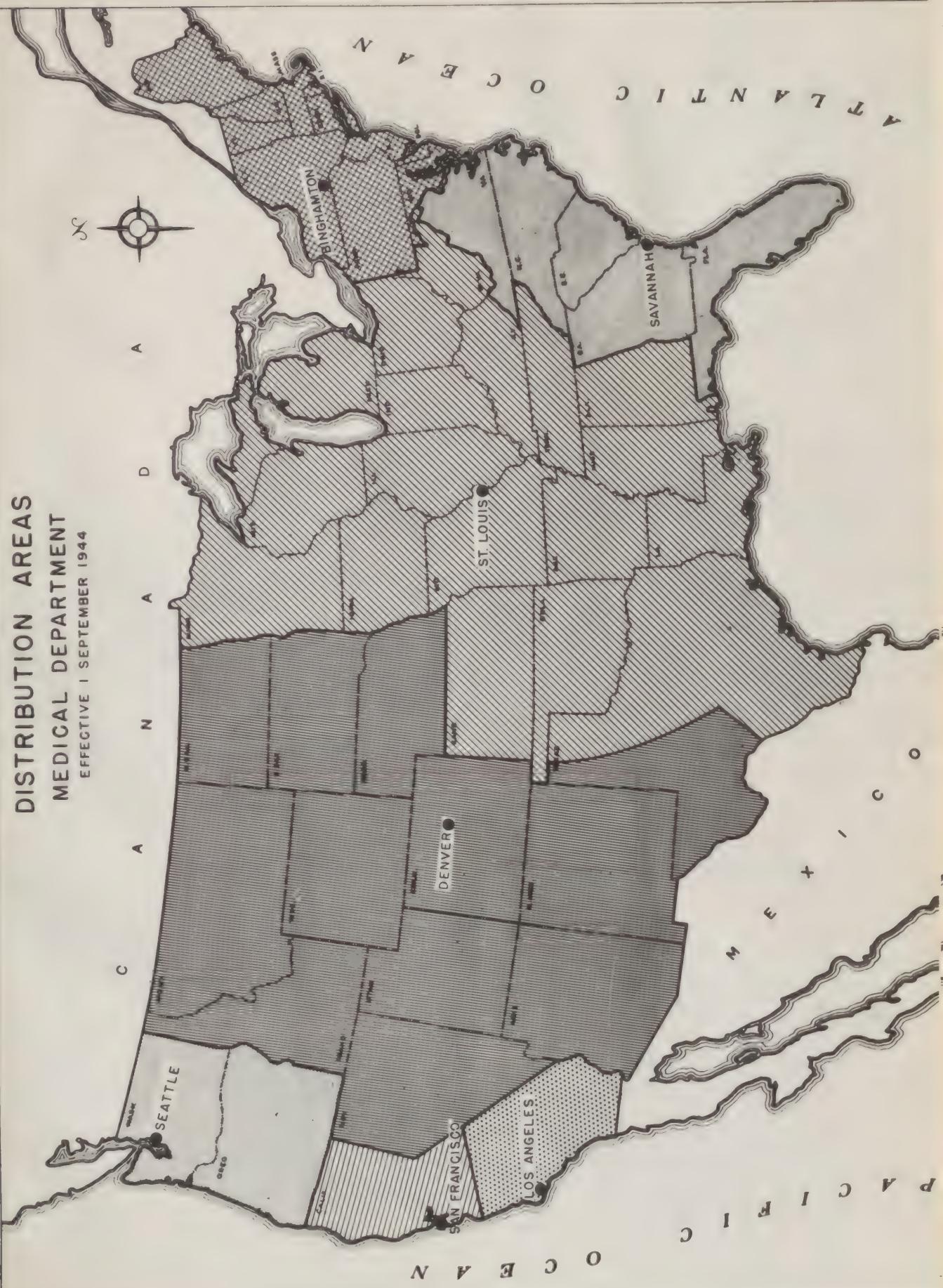
WAR DEPARTMENT
ARMY SERVICE FORCES
OFFICE OF THE SURGEON GENERAL
SUPPLY SERVICE



MEDICAL DEPARTMENT SUPPLY SYSTEM



DISTRIBUTION AREAS
MEDICAL DEPARTMENT
EFFECTIVE 1 SEPTEMBER 1944



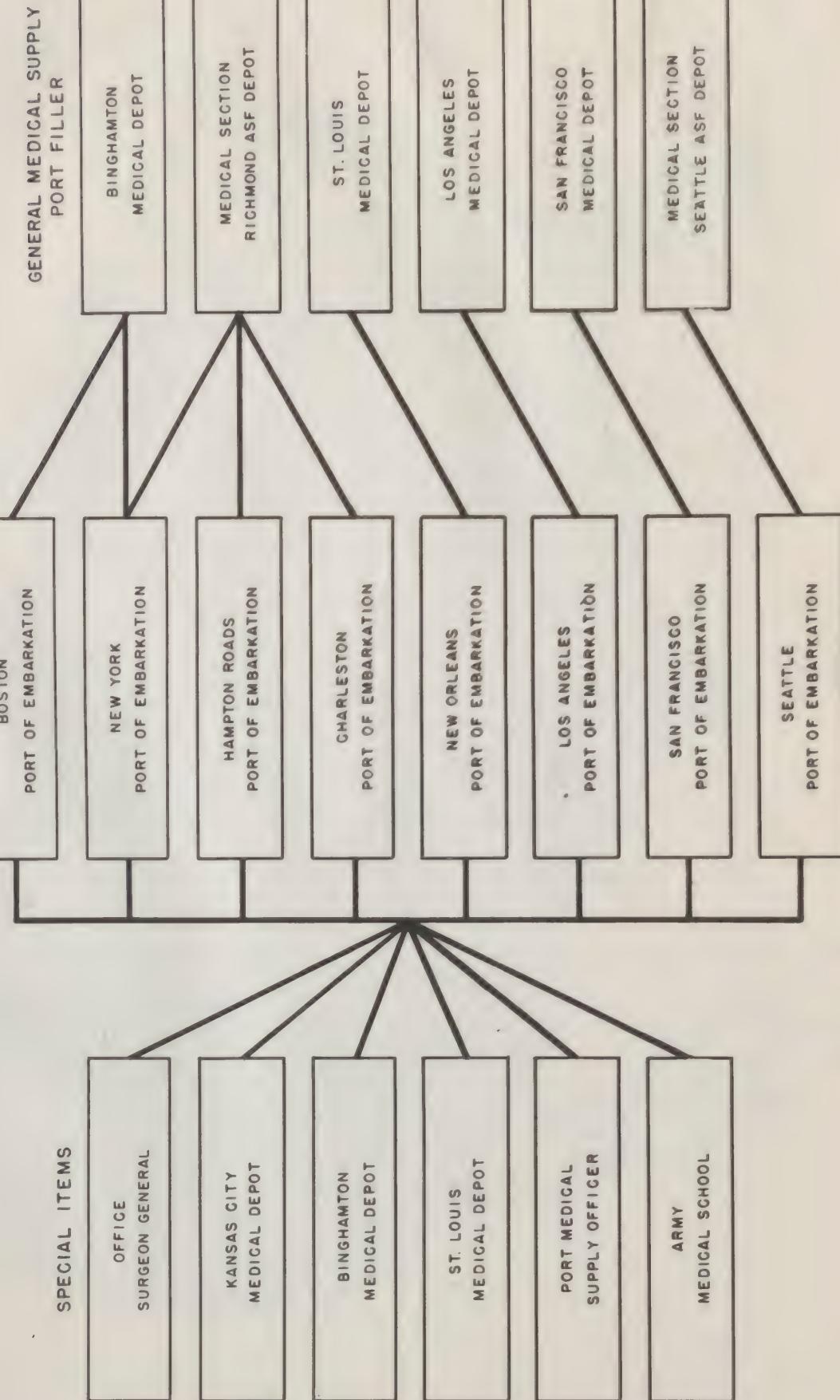
MEDICAL DEPARTMENT OVERSEAS REQUISITION SYSTEM

| SEPTEMBER 1944

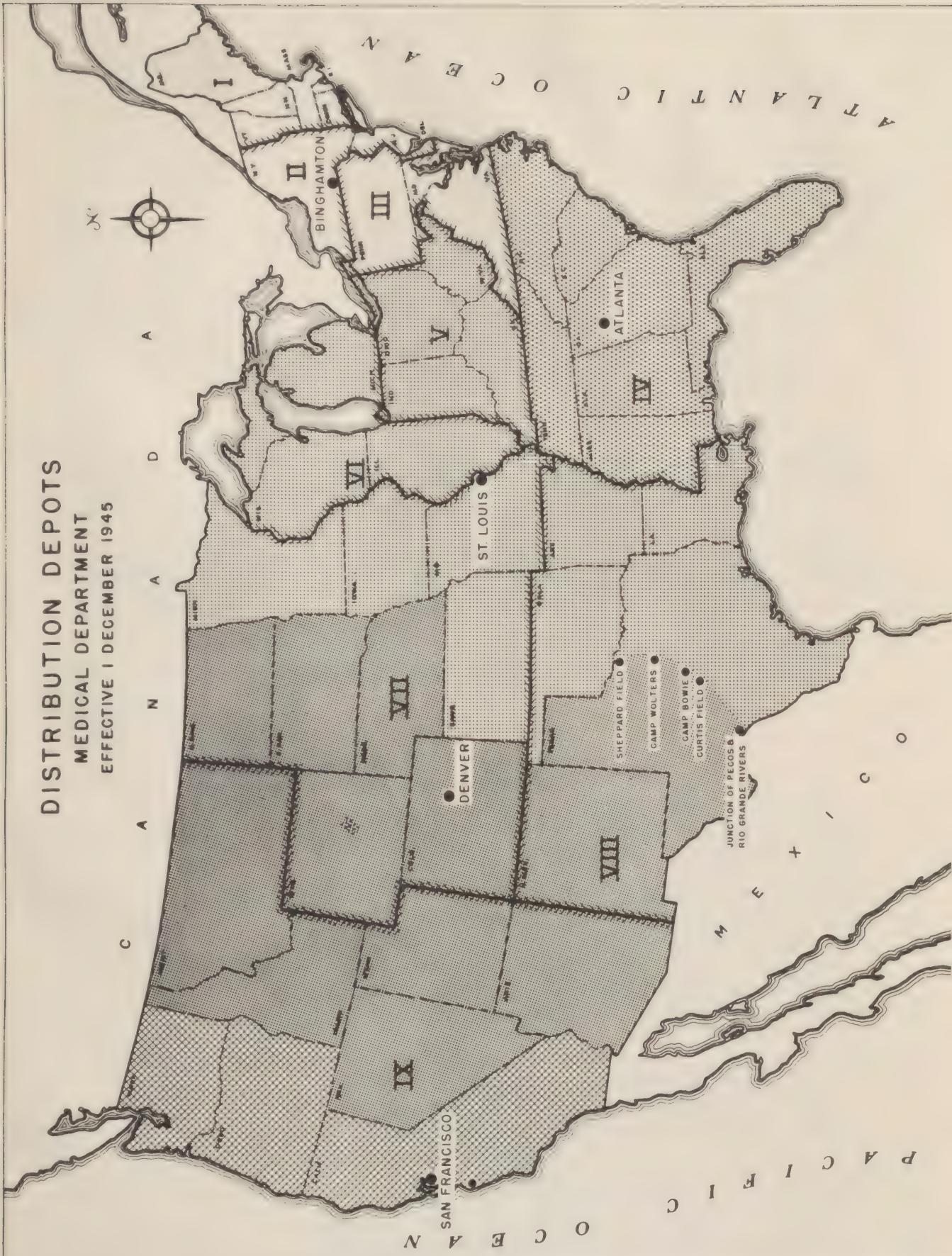
SCHEMATIC CHART

PORT OF EMBARKATION

SPECIAL ITEMS



DISTRIBUTION DEPOTS
MEDICAL DEPARTMENT
EFFECTIVE 1 DECEMBER 1945



~~RESTRICTED~~

Exhibit 8

In Reply
Refer to
SPMDE

ARMY SERVICE FORCES
Office of The Surgeon General
Washington 25, D.C.

Code XVIII-85

6 June 1945

SUBJECT: Miscellaneous - Missions of Medical Department Supply Installations

TO: Commanding Officers:

BI, DN, KK, LA, LV, SF and SL Medical Depots
Medical Supply Officers (Thru Commanding Officers)
AT, CO, RI, SV, SY, SD & CG ASF Depots; PB Ord Depot

1. Effective this date, Code Letters XVIII-64, dated 7 February 1945, XVIII-69 dated 26 February 1945 and XVIII-83 dates 29 May 1945 are rescinded and the following substituted therefor.

2. The following information on the missions of medical depots and medical sections of Army Service Forces and jointly-occupied depots is published for your information and guidance.

3. The missions of medical branch depots and medical sections of Army Service Forces Depots are as follows:

MEDICAL BRANCH DEPOTS

a. BINGHAMTON MEDICAL DEPOT

DISTRIBUTION

1. Distribution Depot: General Medical Supplies. To receive and store all classes of medical supplies (except for key items for which this depot is not the key), for issue to installations (including staging areas and ports for port stocks) located within the states of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Washington, D.C., the posts of Fort Myer, Virginia and Fort Belvoir, Virginia.

KEY

2. Key Depot: a. To receive and store teeth and certain optical equipment (Code 35 items) for distribution to entire Army through all depots and ports.

b. To receive and store x-ray films for distribution to distribution areas of St. Louis Medical Depot and Atlanta Army Service Forces Depot, and for requisitions received from overseas through all east coast and gulf ports.

~~RESTRICTED~~

FILLER

3. Filler Depot: To receive and store medical supplies, Classes 1, 2, 3, 4, 5, 6, 7 and 9 (excepting items for which this depot is not the key), for shipment through the Boston Port of Embarkation and the New York Port of Embarkation. When shipments on oversea requisitions received by the New York Port of Embarkation are made through ports other than the New York Port of Embarkation or Boston Port of Embarkation, the following depots are responsible for this function.

<u>Port Thru Which Shipment Passes</u>	<u>Depot</u>
Philadelphia	Binghamton
Baltimore	Binghamton
Hampton Roads	Richmond
Charleston	Richmond

**RETURNED
MATERIEL**

4. Returned Materiel: To receive, inspect and store Medical Department property from Binghamton Medical Depot distribution area in the zone of interior excepting items keyed to a specific depot or depots.

b. DENVER MEDICAL DEPOT

DISTRIBUTION

1. Distribution Depot: General Medical Supplies. To receive and store all classes of medical supplies (except for key items for which this depot is not the key) for issue to installations located within the states of Idaho, Montana, Wyoming, Colorado, Utah, Nevada, Arizona, New Mexico, Nebraska, North Dakota, South Dakota, and Texas west of a line drawn through the following stations and including these stations: Sheppard Field at Wichita Falls; Camp Wolters at Mineral Wells; Camp Bowie at Brownwood; Curtis Field, Brady; and to the junction of the Pecos River and the Rio Grande.

KEY

2. Key Depot: To supply Classes 1, 2, 3, 4, 5, 6, 7 and 9 on extracts (for Z/I requisitions only) from the San Francisco and Los Angeles Medical Depots, and the Medical Section, Seattle Army Service Forces Depot, until 1 August 1945, on which date the Utah Army Service Forces Depot will assume that portion of this function as pertains to Classes 2 and 9200000 Series.

ASSEMBLY

3. Assembly Depot: Z/I Hospital Units. To receive and store all classes of medical supplies and to assemble into Z/I hospital units for distri-

RESTRICTED
243

~~RESTRICTED~~
bution within the Continental United States, west of the Mississippi River.

RECLAMATION
AND REPAIR

4. Maintenance. To operate a Medical Department fifth echelon shop for reclamation and repair of unserviceable Medical Department property, as directed by The Surgeon General.

RETURNED
MATERIEL

5. Returned Materiel. To receive, inspect and store, for reclamation and repair Medical Department property returned from the Denver Medical Depot's distribution area in the zone of interior excepting items keyed to a specific depot or depots, and property returned from overseas through west coast ports beyond the capacity of the west coast Army Service Forces (Classification) depots. The capacity of the Army Service Forces (Classification) depots is a matter of determination by the medical supply officers of those depots.

c. KANSAS CITY MEDICAL DEPOT

KEY

1. Key Depot. General Medical Supplies. To receive and store selected biologicals and other medical supplies (Code 36); tactical field equipment and other medical supplies (Code 53) for distribution to the entire Army through all depots and ports.

ASSEMBLY

2. Assembly Depot. Tactical Field Equipment. To receive and store required medical supplies (including key items), to be assembled as kits and chests for Z/I and T/O tactical field equipment for issue to the entire Army through all depots and ports.

RETURNED
MATERIEL

3. Returned Materiel: To receive, inspect and store Medical Department property coded 36 when returned from:

a. Zone of interior stations. Returns will be direct from the station.

b. Overseas. Returns will be received through the appropriate medical or Army Service Forces (Classification) depot.

LEND-LEASE

4. Lend-Lease Depot. To receive and store selected biologicals and other items requiring refrigeration for shipment against lend-lease requisitions.

~~RESTRICTED~~

d. LOS ANGELES MEDICAL DEPOT

DISTRIBUTION

1. Distribution Depot. General medical supplies. Until 1 August 1945, to receive and store all classes of medical supplies (except key items for which this depot is not the key) for issue to installations (including staging areas and ports for port stocks) located in the southern part of California, south of a line drawn between Monterey and Bridgeport. On and after 1 August 1945 the Utah Army Service Forces Depot will assume that portion of this function as pertains to Classes 2 and 9200000 Series excepting that requisitions and/or extracts will be forwarded to Utah Army Service Forces Depot after approval and stock availability check by the Los Angeles Medical Depot. Los Angeles Medical Depot will retain supervision of station stock control.

FILLER

2. Filler Depot. Until 1 August 1945, to receive and store all classes of medical supplies (except key items for which this depot is not the key) for shipment overseas through the Los Angeles Port of Embarkation. On and after 1 August 1945, the Utah Army Service Forces Depot will assume that portion of this function as pertains to Classes 2 and 9200000 Series; ports of embarkation will extract oversea requisitions for these classes direct to the Utah Army Service Forces Depot.

RETURNED
MATERIEL

3. No mission.

e. LOUISVILLE MEDICAL DEPOT

KEY

1. Key Depot. a. On and after 1 August 1945, to receive and store Classes 7 and 9900000 Series for distribution to stations in the St. Louis Medical Depot distribution area upon receipt of requisitions and/or extracts after approval and stock availability check by the St. Louis Medical Depot. St. Louis Medical Depot will retain supervision of stock control at stations in its distribution area.

b. On and after 1 August 1945, to supply Classes 7 and 9900000 Series on extracts (for Z/I requisitions only) from the Binghamton Medical Depot and Atlanta Army Service Forces Depot.

c. To receive and store selected items in Class 7 for issue to the entire Army through all depots and ports (Code 58).

~~RESTRICTED~~

~~RESTRICTED~~

FILLER

2. Filler Depot. On and after 1 August 1945, to receive and store Classes 7 and 9900000 Series for shipment through New Orleans Port of Embarkation. When shipments on oversea requisitions received by the New Orleans Port of Embarkation are made through the New York Port of Embarkation, the Binghamton Medical Depot is responsible for this function.

ASSEMBLY

3. Assembly Depot. T/O Hospital Units. On and after 16 June 1945, to receive and store all classes of medical supplies for assembly into theater of operation type hospitals, including functionally packed hospitals, for shipment overseas through all ports. This function will be transferred from Atlanta Army Service Forces Depot as follows:

a. 50% of assembly program at Atlanta Army Service Forces Depot - 16 June 1945

b. Balance of assembly program at Atlanta Army Service Forces Depot - 1 September 1945

RECLAMATION
AND REPAIR

4. Maintenance. To operate a Medical Department fifth echelon shop for reclamation and repair of unserviceable Medical Department property, as directed by The Surgeon General.

RETURNED
MATERIEL

5. Returned Materiel. To receive, inspect and store for reclamation and repair Medical Department property:

a. Returned from overseas through east coast and New Orleans Ports of Embarkation.

b. Classes 7 and 9900000 Series returned from the St. Louis Medical Depot's zone of interior distribution area.

c. Excesses returned from Atlanta Army Service Forces Depot's zone of interior distribution area excepting items which The Surgeon General's Office has directed be returned to specific depots, e.g., Code 34, 35, 36, 37, 38 and 39 items.

d. Items to be received as a result of contract termination in Eastern United States.

LEND-LEASE

6. Lend-Lease Depot. To receive and store all classes of medical International Aid Military supplies except biologicals and other items requiring refrigeration for issue against orders for lend-lease medical account for shipment through all ports.

EVACUATION

7. Evacuation. To evacuate to the fifth echelon shop of the St. Louis Medical Depot items

~~RESTRICTED~~

~~RESTRICTED~~

of a highly technical character for reclamation and repair, excepting Classes 7 and 9900000 Series items.

RESERVE

8. Reserve Depot. General medical supplies. To receive and store medical supplies as a reserve backup, for shipment to all depots.

f. ST. LOUIS MEDICAL DEPOT

DISTRIBUTION

1. Distribution Depot. General medical supplies. Until 1 August 1945 to receive and store all classes of medical supplies (except key items for which this depot is not the key) for issue to installations (including staging areas and ports for port stocks) located within the states of Kansas, Missouri, Kentucky, Oklahoma, Arkansas, Tennessee, Louisiana, Mississippi, Alabama, Minnesota, Iowa, Ohio, Wisconsin, Illinois, Indiana, Michigan, West Virginia, those installations within the eastern part of Texas not covered by the Denver Medical Depot, and the Northwest Service Command. On and after 1 August 1945, the Louisville Medical Depot will assume that portion of this function as pertains to Classes 7 and 9900000 Series excepting that requisitions and/or extracts will be forwarded to the Louisville Medical Depot after approval and stock availability check by the St. Louis Medical Depot. The St. Louis Medical Depot will retain supervision of station stock control.

KEY

2. Key Depot. a. To receive and store arch supports (Code 34), spare parts, books, orthopedic shop equipment, occupational therapy equipment, physical reconditioning equipment and selected items (Code 52 items), also Class 8 for issue to the entire Army through all depots and ports.

b. To supply Classes 1, 2, 3, 4, 5, 6, 7 and 9 on extracts (for Z/I requisitions only) from the Binghamton Medical Depot, and Atlanta Army Service Forces Depot, until 1 August 1945, on which date the Louisville Medical Depot will assume that portion of this function as pertains to Classes 7 and 9900000 Series.

FILLER

3. Filler Depot. Until 1 August 1945, to receive and store all classes of medical supplies, (except key items for which this depot is not the key), for shipment overseas through New Orleans Port of Embarkation. On and after 1 August 1945,

~~RESTRICTED~~

~~RESTRICTED~~

the Louisville Medical Depot will assume that portion of this function as pertains to Classes 7 and 9900000 Series for New Orleans Port of Embarkation which port will extract requisitions for these items direct to Louisville Medical Depot. When shipments on oversea requisitions received by the New Orleans Port of Embarkation are made through the New York Port of Embarkation, the Binghamton Medical Depot is responsible for this function.

RECLAMATION
AND REPAIR

4. Maintenance. To operate a Medical Department fifth echelon shop for reclamation and repair of unserviceable Medical Department property, as directed by The Surgeon General.

RETURNED
MATERIEL

5. Returned Materiel. To receive, inspect and store for reclamation and repair Medical Department property returned from St. Louis Medical Depot's zone of interior distribution area excepting Classes 7 and 9900000 Series and excepting items keyed to a specific depot or depots.

TRAINING

6. Training. a. To train potential supply officers in stock control, stock accounting and inventory, receiving and inspection, warehousing and materiels handling, stock selection, packing and marking, and personnel supervision in accordance with directives of The Surgeon General.

b. To train commissioned and enlisted Medical Department personnel in the installation, preventive maintenance, reclamation and repair of medical equipment in accordance with the directives of The Surgeon General.

g. SAN FRANCISCO MEDICAL DEPOT

DISTRIBUTION

1. Distribution Depot. General Medical Supplies. Until 1 August 1945, to receive and store all classes of medical supplies (except key items for which this depot is not the key) for issue to installations (including staging areas and ports for port stocks) located in Northern California, north of a line drawn from Monterey to Bridgeport, and including the Presidio of Monterey and Fort Ord. On and after 1 August 1945, the Utah Army Service Forces Depot will assume that portion of this function as pertains to Classes 2 and 9200000 Series excepting that requisitions and/or extracts will be forwarded to Utah Army Service Forces.

~~RESTRICTED~~

Depot after approval and stock availability check by the San Francisco Medical Depot. San Francisco Medical Depot will retain supervision of station stock control.

FILLER

2. Filler Depot. a. Until 1 August 1945, to receive and store all classes of medical supplies (except key items for which this depot is not the key) for shipment overseas through the San Francisco Port of Embarkation. On and after 1 August 1945, the Utah Army Service Forces Depot will assume that portion of this function as pertains to Classes 2 and 9200000 Series; ports of embarkation will extract oversea requisitions for these items direct to the Utah Army Service Forces Depot. With the exception of the Classes 2 and 9200000 Series items, when shipments on oversea requisitions received by the San Francisco Port of Embarkation, are made through ports other than the San Francisco Port of Embarkation, the following depots are responsible for this function:

<u>Port Thru Which Shipment Passes</u>	<u>Depot</u>
--	--------------

Los Angeles	Los Angeles
Seattle	Seattle
Portland	Seattle

With the exception of the Class 7 and 9900000 Series items, when shipments on oversea requisitions received by the San Francisco Port of Embarkation, are made through the New Orleans Port of Embarkation, the St. Louis Medical Depot is responsible for this function. Louisville Medical Depot is responsible for Class 7 and 9900000 Series items when shipments on oversea requisitions received by the San Francisco Port of Embarkation are made through the New Orleans Port of Embarkation.

b. To receive and store X-ray films for requisitions received from overseas through all west coast ports.

RETURNED
MATERIEL

3. No mission.

h. TOLEDO MEDICAL DEPOT

Deactivated 1 May 1945. Functions transferred to the Columbus Army Service Forces Depot.

~~RESTRICTED~~

MEDICAL SECTIONS, ARMY SERVICE FORCES DEPOTS

a. MEDICAL SECTION, ATLANTA ARMY SERVICE FORCES DEPOT

DISTRIBUTION

1. Distribution Depot. General medical supplies. Effective 16 June 1945, to receive and store all classes of medical supplies (except key items for which this depot is not the key) for issue to installations (including staging areas and ports for port stocks) located within the states of Florida, Georgia, South Carolina, North Carolina, and Virginia, except Fort Belvoir and Fort Myer.

ASSEMBLY

2. Assembly Depot. a. T/O Hospital Units. Until 1 September 1945, to receive and store all classes of medical supplies for assembly into theater of operations type hospitals including functionally packed hospitals, for shipment overseas through all ports. This function will be transferred to Louisville Medical Depot on the following dates:

50% of Atlanta Army Service Forces Depot

Assembly Program - 16 June 1945

Balance of Atlanta Army Service Forces

Depot Assembly Program - 1 September 1945

b. On and after 16 June 1945, Zone of Interior hospital units. To receive and store all classes of medical supplies to be assembled into Z/I hospital units for distribution within the United States east of the Mississippi River.

RETURNED
MATERIEL

3. No mission.

b. MEDICAL SECTION, COLUMBUS ARMY SERVICE FORCES DEPOT

KEY

1. Key Depot. Civilian Aid. To receive and store all classes of medical supplies for issue and for assembly of civilian aid medical units, for shipment overseas through all ports of embarkation.

ASSEMBLY

2. Assembly Depot. T/O Hospital Units. To receive and store all classes of medical supplies to be assembled into theater of operation type hospitals including functionally packed hospitals for shipment overseas through all ports.

RETURNED
MATERIEL

3. No mission.

~~RESTRICTED~~
c. MEDICAL SECTION, RICHMOND ARMY SERVICE FORCES DEPOT

FILLER

1. Filler Depot. General medical supplies. To store all classes of medical supplies (except key items for which this depot is not the key) for shipment overseas by Hampton Roads and Charleston Ports of Embarkation and New York Port of Embarkation for all items for shipment through the Hampton Roads and Charleston Ports of Embarkation. Also store classes 2, 7 and 9200000 Series, for shipment through New York Port of Embarkation until 1 June 1945 at which time the Binghamton Medical Depot will assume this function.

RETURNED
MATERIEL

2. No mission.

d. MEDICAL SECTION, SAVANNAH ARMY SERVICE FORCES DEPOT

DISTRIBUTION

1. Distribution Depot. General medical supplies. Until 16 June 1945, to store all classes of medical supplies (except key items for which this depot is not the key) for issue to installations (including staging areas and to ports for port stocks) located within the states of Florida, Georgia, South Carolina, North Carolina, and Virginia, except Fort Myer and Fort Belvoir. This function will be transferred to Atlanta Army Service Forces Depot on 16 June 1945.

ASSEMBLY

2. Assembly Depot. Until 16 June 1945, zone of interior hospital units. To store all classes of medical supplies to be assembled into Z/I hospital units for distribution within the United States east of the Mississippi River. This function will be transferred to Atlanta Army Service Forces Depot on 16 June 1945.

RETURNED
MATERIEL

3. No mission.

RESERVE

4. Reserve Depot. General medical supplies. On and after 16 June 1945, as a reserve depot. To store medical supplies exclusive of key items as reserve stocks for issue to the Atlanta Army Service Forces Depot's zone of interior distribution area.

e. MEDICAL SECTION, SEATTLE ARMY SERVICE FORCES DEPOT

DISTRIBUTION

1. Distribution Depot. General medical supplies. Until 1 August 1945, to receive and store all

RESTRICTED

classes of medical supplies (except key items for which this depot is not the key) for issue to installations (including staging areas and ports for port stocks) located within the states of Oregon and Washington. On and after 1 August 1945 the Utah Army Service Forces Depot will assume that portion of this function as pertains to Classes 2 and 9200000 Series excepting that requisitions and/or extracts will be forwarded to Utah Army Service Forces Depot after approval and stock availability check by the Seattle Army Service Forces Depot. Seattle Army Service Forces Depot will retain supervision of station stock control.

FILLER

2. Filler Depot. Until 1 August 1945, to receive and store all classes of medical supplies (except key items for which this depot is not the key) for shipment through the Seattle Port of Embarkation and Prince Rupert Subport of Embarkation. On and after 1 August 1945, the Utah Army Service Forces Depot will assume that portion of this function as pertains to Classes 2 and 9200000 Series; ports of embarkation will extract oversea requisitions for these items direct to the Utah Army Service Forces Depot.

**RETURNED
MATERIEL**

3. No mission.

f. MEDICAL SECTION, UTAH ARMY SERVICE FORCES DEPOT

KEY

1. Key Depot. On and after 1 August 1945, to receive and store Classes 2 and 9200000 Series for distribution to zone of interior stations on requisitions and/or extracts forwarded to Utah Army Service Forces Depot after approval and stock availability check by the Los Angeles and San Francisco Medical Depots and the Seattle Army Service Forces Depot. These latter-mentioned depots will retain supervision of stock control for stations in their distribution areas.

FILLER

2. Filler Depot. On and after 1 August 1945, to receive and store Classes 2 and 9200000 Series for shipment through the Los Angeles, San Francisco and Seattle Ports of Embarkation or their outports. These ports will extract those items direct to the Utah Army Service Forces Depot, unless shipment is to be made through the New Orleans Port of Embarkation in which event, requisition will be extracted to the St. Louis Medical Depot.

UNCLASSIFIED

RETURNED
MATERIAL

3. Returned Materiel. To receive, inspect and store Class 2 and 9200000 Series items returned from zone of interior distribution areas of the Los Angeles and San Francisco Medical Depots and Seattle Army Service Forces Depot.

RESERVE

4. Reserve Depot. General medical supplies.
As a reserve depot. To store all classes of medical supplies, as back-up reserve stocks for shipment to the Seattle, San Francisco and Los Angeles depots.

g. MEDICAL SECTION, PUEBLO ORDNANCE DEPOT

**RETURNED
MATERIEL**

1. No mission.

RESERVE

2. Reserve Depot. General medical supplies.
As a reserve depot. To store general medical supplies, exclusive of key items, as reserve stocks for the depots in western part of United States.

h. MEDICAL SECTION, SCHENECTADY ARMY SERVICE FORCES DEPOT

Deactivated 15 June 1945 - filler mission functions transferred to Binghamton Medical Depot. Returns from contract termination mission transferred to the Louisville Medical Depot. No further necessity for balance of mission.

MEDICAL SECTIONS, ARMY SERVICE FORCES (CLASSIFICATION) DEPOTS

a. CAMP HAAN, CALIFORNIA

**RETURNED
MATERIEL**

1. Returned Materiel. Receives and inspects returns of medical supplies through the Los Angeles Port of Embarkation to the capacity of Camp Haan Army Service Forces (Classification) Depot. Supplies returned through the Los Angeles Port of Embarkation beyond the capacity of the Camp Haan Army Service Forces (Classification) Depot, will be diverted to the Denver Medical Depot. The capacity of the Camp Haan Army Service Forces (Classification) Depot is a matter of determination by the medical supply officer of that depot.

b. CAMP BEALE, CALIFORNIA

**RETURNED
MATERIEL**

1. Returned Materiel. Receives and inspects returns of medical supplies through the San Francisco Port of Embarkation to the capacity of the Camp Beale Army Service Forces (Classification)

UNCLASSIFIED

UNCLASSIFIED

Depot. Supplies returned through the San Francisco Port of Embarkation beyond the capacity of the Camp Beale Army Service Forces (Classification) Depot, will be diverted to the Denver Medical Depot. The capacity of the Camp Beale Army Service Forces (Classification) Depot is a matter of determination by the medical supply officer of that depot.

c. FORT LEWIS, WASHINGTON

RETURNED MATERIEL
MATERIEL

1. Returned Materiel. Receives and inspects returns of medical supplies through the Seattle Port of Embarkation to the capacity of the Fort Lewis Army Service Forces (Classification) Depot. Supplies returned through the Seattle Port of Embarkation beyond the capacity of the Fort Lewis Army Service Forces (Classification) Depot, will be diverted to the Denver Medical Depot. The capacity of the Fort Lewis Army Service Forces (Classification) Depot is a matter of determination by the medical supply officer of that depot.

FOR THE SURGEON GENERAL:

EDWARD REYNOLDS
Colonel, MAC
Chief, Supply Service

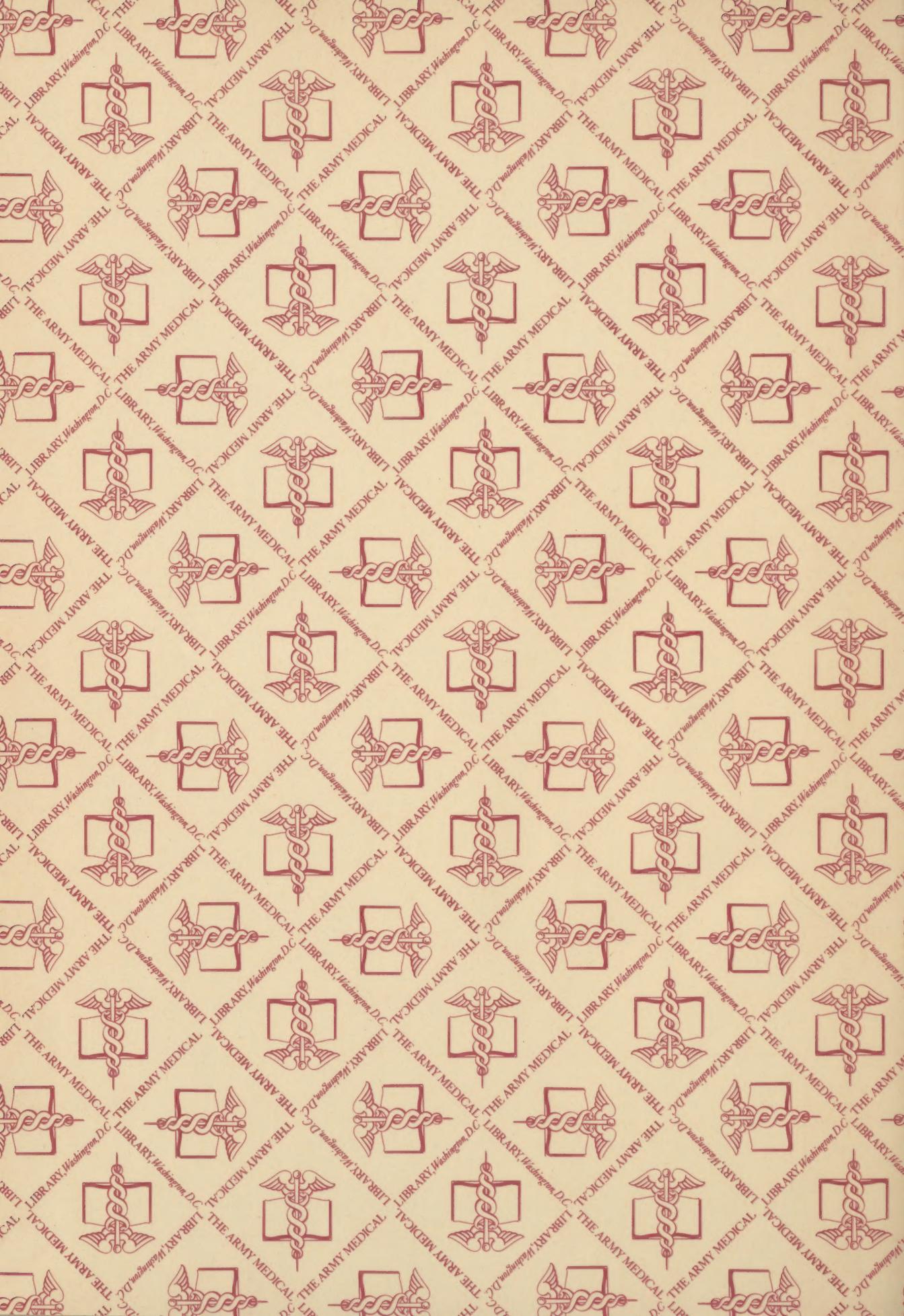
UNCLASSIFIED

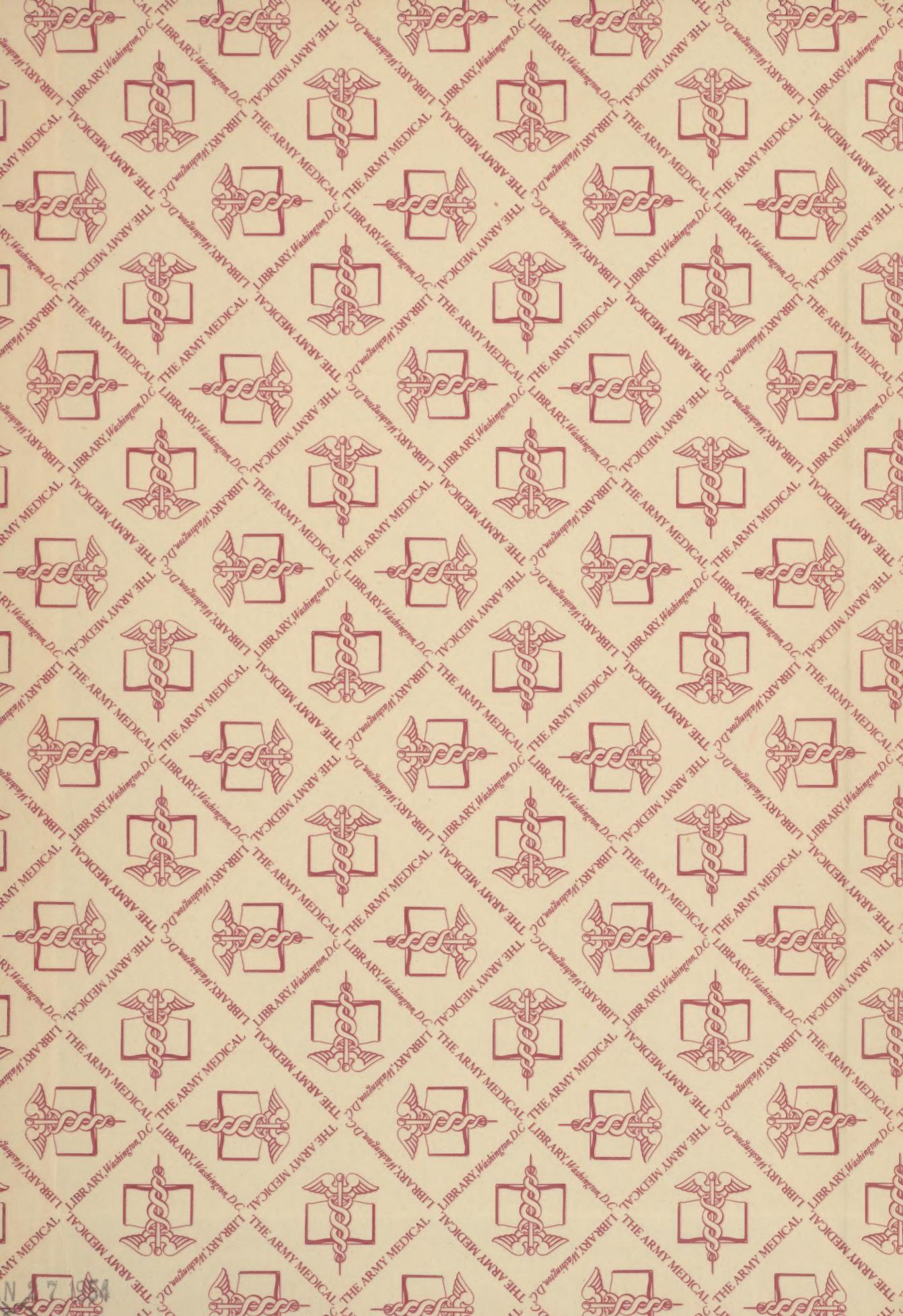
254

RESTRICTED

3197

John C. H. Smith





UH 440 qU5825p 1946

14221040R



NLM 05100416 1

NATIONAL LIBRARY OF MEDICINE